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Contents

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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Synthetic Ammonia Developments

THE announcement that the recent guarantee of £2,000,000 under the Trade Facilities Act to Brunner, Mond and Co. is to be applied to a very large extension of their nitrogen fixation works at Billingham is a matter of exceptional interest and points to important developments in this industry. The Billingham output at present is estimated at 120 tons of sulphate of ammonia per day, equalling nearly 45,000 tons a year. The works, it is understood, are to be enlarged to four or five times their present capacity and production increased to 800 tons per day, representing a total annual output of nearly 300,000 tons. The significance of the latter figure will be appreciated when it is recalled that the total British output of by-product sulphate of ammonia—*i.e.*, from gas works, coke-oven works, iron works, and producer gas and carbonising works—is 327,996 tons per year, according to the last official report, though the potential capacity is considerably larger. Billingham is already the largest individual producer in Great Britain, and now it is within sight of an annual production closely approximating to that from all forms of organised coal carbonisation in this country. As the result of increased production throughout the world the price of ammonium sulphate has latterly shown distinct signs of decline. For the year 1923 it is estimated that the average British export price was about £15 10s. per ton; for 1924 it had declined to about £13 10s.; this year it will probably show a further decrease. Although Synthetic Ammonia and Nitrates, Ltd., are members of the British Sulphate of Ammonia Federation, the central organisation which regulates prices and market conditions, and its output is handled by the Federation like that from the principal by-product concerns, the gas companies already see in the synthetic product a serious rival, and must realise that while their own production is limited by the amount of coal they treat, the production of synthetic nitrogen knows no physical limits, now the art of commercial fixation has been mastered.

Nor is the greatly increasing output of the synthetic article the only problem. There is also the question of quality. In the last report of the British Sulphate of Ammonia Federation it was stated that well over 80 per cent. of the total output is now of the neutral acid-free quality, but that the advent of considerable quantities of German synthetic sulphate on the export markets has provoked comparison with the British neutral salt. "It is clear," the report stated, "that buyers have a preference for neutral sulphate of ammonia which consists of distinct crystals, and these should be as large as the plant can produce. This preliminary condition will prevent any tendency to cake, and will also make it possible to distribute the sulphate over land without risk of its being blown about in the wind—a very considerable risk with neutral sulphate in powdery form. It is, therefore, desirable that all neutralising plant which has the effect of reducing the final product to a powdery form should be immediately replaced by one of the more modern plants which preserve the natural crystals in the salt."

Our own columns have recently shown that the technical experts associated with leading gas undertakings have been studying the problem of producing ammonium sulphate in a definitely crystallised form, and at Wembley there is at least one sample of by-product sulphate in the needle crystal form. The needles, however, are very slight and brittle, and when rubbed or crushed in the hand appear to return to the condition of ordinary neutral salt. Close by, on the stand of Synthetic Ammonia and Nitrates, Ltd., there is on view as perfect a sample of pea crystal sulphate as could be imagined. The crystals are about pin-head size, beautifully clean, and when shaken about show no sign of caking or sticking. This exhibit, indeed, may fairly be described as the chemical surprise of Wembley this year, and since Billingham has, quietly and without the least self-advertisement, actually produced a crystalline form which we imagine to be equal to anything Germany can show, it is reasonable to assume that sulphate in the pea crystal form will be marketed by them to a very considerable extent, if not exclusively, in the future. In addition, the company exhibit a very pure sample of their synthetic ammonium nitrate, which has been produced in an experimental plant and which, we

understand, is presently to be manufactured on a large commercial scale.

We call attention to this series of facts because they indicate the astonishing advances which have been made in the nitrogen industry in this country since the Armistice, and supply convincing evidence of the ability of British chemical science and industry, when they are given a fair chance, to meet the needs of the world and equal the best of foreign competition.

Tar Sliding Scale Contracts

RELATIVELY few of the actual tar producers in this country have embarked on tar distillation, because it has generally been felt that not only is there an element of danger attending such a process, but that success from an economic point of view depends largely on the scale of operations. It is now suggested that it is a profitable enterprise for producers to dehydrate their own product, as the realisation from the sale of road tar and light oils will be greater than can be obtained for the raw material when sold to the distillers on a sliding scale basis, rising or falling with the values of pitch, oil and naphtha month by month. There are, of course, two points of view: the tar distillers' and the gasworks'.

Wherever possible, tar distilleries are situated at a port, or on a canal or river which has easy access to a port. A not unimportant part of the tar eventually takes the form of pitch, and is sold as such. This product is largely disposed of on the continent. If producers distil the tar at the point where it is made, the pitch would, in the majority of cases, need to be sent to port. The question of the saving on railway carriage is not, therefore, material. Tar varies in point of quality somewhat appreciably. Different works produce different qualities. It is conceivable that the county authorities would not care to purchase their requirements from several separate producers lest there be an absence of uniformity in the deliveries. It must be remembered that the road tar market is a seasonal one, so that producers would be faced either with the storage of their tar during the most active season or they would be called upon to store the road tar. In either case expense would be involved, quite apart from the loss of interest on the sum which otherwise would be received monthly if the raw material was sold to the tar distillers. Again, if a considerable number of tar manufacturers made road tar, it is certain that they would be faced with competition from the tar distillers themselves. Prices, obviously, would be affected. Moreover, many chemists and practical men hold the view that the best road tar can be made from molten pitch, suitably thinned by the addition of dephenolised oils. If this is the case, then those producers with dehydration plants would be incapable of supplying the best product. On the other hand, there is no doubt that gasworks in particular are entitled to expect a modification in the usual sliding scale arrangement. Certainly, the price realised for road tar should be included in the monetary statement, and the quantity sold clearly indicated. If such a modified arrangement were adopted, many of the small and medium-sized gasworks would hesitate before erecting dehydration plants.

Synthetic Hydrochloric Acid

THE latest of the series of admirably produced technical pamphlets, issued by the Castner-Kellner Alkali Co., Ltd., tells briefly but clearly the story of "Synthetic Hydrochloric Acid." Prepared by Valentine in the fifteenth century, HCl was regarded by Glauber as a rare substance even in the seventeenth century. Glauber, however, discovered its preparation from salt and oil of vitriol, and obtained sodium sulphate at the same time. This, subsequently, became the first stage of the Le Blanc soda process, and the pamphlet reminds us that in the early stages of this process HCl gas, which was produced in considerable quantities, was regarded as a useless by-product and was allowed to pass out by the smoke stack. In 1836 Gossage patented the use of coke towers for the condensation of the acid, and from that date the HCl industry may be said to have developed. The chief reason for delay in the efficient condensation of the gas was lack of incentive to produce a substance which at that time could not be absorbed in industry and had to run to waste. The Weldon and Deacon processes, however, enabled HCl to be converted into chlorine for the manufacture of bleaching powder and chlorates. With the development of the electrolytic processes for the manufacture of caustic soda and chlorine the use of the latter for the chlorination of organic substances in the preparation of dyestuff intermediates provided a further source of HCl as a by-product.

In 1912 the Castner-Kellner Co., we are told, "first produced synthetic hydrochloric acid on a commercial scale by the direct combination of hydrogen and chlorine. Chlorine was thus used to prepare hydrochloric acid, whereas previously hydrochloric acid had been used as a source of chlorine. The change was revolutionary and significant, and showed the trend of development in the heavy chemical industry." The consumption of the synthetic acid was small at first, but the high degree of purity soon became appreciated and the demand steadily increased. The production of synthetic acid has thus become an important industry. In solution the acid dissolves most metals and reacts readily with their oxides and carbonates, forming the corresponding chlorides. In the case of peroxide of metals, a portion of the HCl combines to form the metallic chloride, whilst a portion is oxidised to chlorine. Many minerals are attacked by HCl with more or less speedy disintegration. Ordinary commercial HCl is a solution in water which generally contains from 28 per cent. to 32 per cent. of HCl gas. But it often contains impurities such as sulphuric acid, ferric chloride, arsenic chloride, free chlorine, sulphurous acid, and organic matter. Synthetic hydrochloric acid is described as a water-white acid, for which the highest degree of purity obtainable is claimed. It is made in several strengths up to 40 per cent. HCl. It is used now in a great variety of operations, and the advantage of a pure acid in the preparation of other pure substances, of foodstuffs, etc., is obvious. Discoloration of the products is avoided, and the risk of contamination with arsenic and iron eliminated. The high strength of synthetic hydrochloric acid is also important because of the economy in acid, packages, and transport charges.

One good point about all this is that it is one more example of the advance which is being steadily made in this country in the perfection of our chemical processes and in the manufacture of high-grade chemical products.

A New System of Oil Carburation

THE high oil prices which ruled during the years immediately after the war led to a series of experiments in connection with the use of cruder and cheaper oils for water-gas carburation in America from which a new standard practice seems likely to arise. The importance of the matter to American consumers may be gauged from the fact that in that country no less than 900 million gallons of oil are used annually for carburetting purposes, while any improvement which can be effected in efficiency of utilisation is not to be overlooked in this country where our annual consumption borders on 50 million gallons. In the process of carburetting a lean water gas up to a gas of higher calorific power, oil is sprayed into a specially designed vessel lined with firebrick and closely packed with refractory chequerwork. The causes which prevent the use of the heavier fuel oils for the purpose are the deposit of free carbon in the carburettor and the formation of tar emulsions owing to improper distillation or inadequate cracking of the oil. To overcome these drawbacks, when using either light or heavy oils, the empty or "chequerless" carburettor has been introduced in America, and judging from prolonged trials conducted on a large scale it would appear that the system has a good deal to recommend it. As the name implies, no chequerwork whatever is installed in the carburettor, the cracking of the oil being effected by the radiant heat emitted by the refractory lining of the walls and crown of this vessel. The superheater, it should be mentioned, is chequered in the usual way, the heat from these chequers completing the cracking and permanent fixing of the oil constituents of the gaseous mixture.

With the new system it is necessary, of course, to remove at regular intervals the accumulation of coke at the bottom of the carburettor, but the operation is necessitated only very infrequently, in some cases a working spell of some 800 hours being possible. The results published in connection with oil efficiency are extremely interesting, and for the sake of comparison it should be borne in mind that in this country it is usually considered good practice if 100,000 B.Th.U. are obtained in the gaseous form from a gallon of normal carburetting oil. The American results show that with the "chequerless" system the yield per gallon varied from 103,000 to 110,000 B.Th.U. with light oil of the usual grade, whereas with a heavy oil the yield was 96,000 B.Th.U., and with a crude oil 80,000 B.Th.U. It would seem, therefore, that the saving effected in cost when using heavy or crude oils would more than counterbalance any reduction in oil efficiency while there is the added advantage that troublesome tar emulsions are entirely avoided. The system should be well worth the attention of those employing the process in this country, particularly as the experiment may be so simply carried out without involving anything in the way of extensive alterations to plant.

The Faraday Celebrations

PROFESSOR H. E. ARMSTRONG, in a letter to *The Times* on the centenary celebration on June 16 of Faraday's discovery of benzene, remarks that chemists, all too tardily, are now seeking to make Faraday's greatness as a chemist and the purely chemical side of his activity known and respected. His estimate of Faraday is that he was equally competent as chemist and as physicist; all his early work was chemical and he passed from chemistry to physics over an electrochemical bridge which he himself built. "The structure," he concludes, "chemists have built upon Faraday's foundation is not only colossal, but a firm one; indeed, a certainty little short of absolute may be claimed for their deductions; so much is this the case, that physicists who are turning the X-rays upon chemists' work are in agreement that there is little left for them to do but confirm chemists' pronouncements. . . . We ask for the moral and material support and sympathy of all who have the imagination, in any way, to grasp the importance—in the march of our civilisation—of the loving care given by a host of scientific workers to the nurture of Faraday's child. I suggest that our English schools of chemistry may well mark the occasion, this year and in future, by making June 16 a holy day, on which Faraday's entire devotion of his genius to the service of his fellow-men may be worthily remembered and honoured."

Points from Our News Pages

Further notes on the Chemical Section at Wembley (p. 496).

Professor E. C. Williams reviews "The Chemical Engineering Library," and gives valuable comment on the individual contributions to the series (p. 490).

The conclusion of the Board of Trade hearing of the proposed protective duty on superphosphates (p. 499).

The Oil and Colour Chemists' Association recorded a successful year at their annual meeting (p. 500).

Chemical matters have been raised in Parliament (p. 503).

The death is announced of Messrs. C. R. Bloxcidge, R. Dempster, T. Pilkington, G. Margerison, and E. Ashworth (p. 504).

Our London Chemical Market shows continued slight improvement, but little export business (p. 509).

A better tone in the Heavy Chemical Market and rather more inquiries are recorded in our Scottish report (p. 512).

Book Received

COST OF FREIGHT TRANSPORT. By F. W. Rogerson. Liverpool: F. W. Rogerson, 70, Ash Grove, Wavertree. Pp. 40. 4s. 4d. post free.

The Calendar

1925 May 25	Society of Glass Technology (First Session)—Symposium on "The Constitution of Glass." 7.30 p.m.	Royal Society of Arts, John Street, Adelphi, London.
26	Society of Glass Technology (Second Session)—Symposium on "The Constitution of Glass." 2.30 p.m.	University College, Gower Street, London.
	Annual Dinner. 7.15 p.m.	Hotel Cecil, Strand, London.
27	West Cumberland Society of Chemists and Engineers. Discussion: Smoke Abatement. Introduced by H. Hoy. 7 p.m.	Workington.
29	Chemical Engineering Group: Annual General Meeting. 8.15 p.m.	Chemical Industry Club, Whitehall Court, London.
June 17	Royal Microscopical Society: Annual Exhibition of Microscopic Pond Life. 7.30 p.m.	20, Hanover Square, London, W.1.

Chemical Exhibits at the British Empire Exhibition

Further notes are published below on the chemical exhibits at Wembley, including some interesting new products. The remainder of the exhibits will be noticed in future issues.

British Dyestuffs

THE Chemical Section this year shows considerable evidence of collective exhibits. Close by the Alchemist Gate is a very beautiful stand designed by Mr. Norman Wilkinson, on which are shown a number of exhibits illustrating the application of British Dyestuffs to fabrics and materials of all descriptions. This is one of the exhibits which the Queen noted specially during her recent visit. The stand has as its main features two tents and a long corridor in multi-coloured drapings. The roofs of the tents, which bear the device "Dyestuffs of Great Britain," continuously revolve slowly. The corridor, which is on the north side of this stand, is enclosed by an archway draped with dyed materials and along the sides are a series of panels in which are exhibited some beautiful examples of dyed and printed materials prepared with British dyes by J. and J. M. Worrall, Ltd., The Calico Printers' Association, and The Bradford Dyers' Association.

An alcove in the north-west corner is devoted to the display of a wide range of dyed leathers. On a number of tables along the corridor and in and around the tents are displayed in various ways a large number of articles dyed with British dyes. Particular mention may be made of two exquisite fans, leather-work articles, and the furnishings for a dressing table, also tobacco jars and walking sticks made of vulcanite, in which the King was much interested. A feature of considerable interest to house decorators is the colouring of the woodwork of the stand. All the pillars have been stained with British dyestuffs and afterwards varnished.

The dyemakers participating in this co-operative exhibit are :—The Ajax Aniline Dye Manufacturing Co., Ltd., The Alliance Colour and Chemical Co., Ltd., J. C. Bottomley and Emerson, Ltd., The British Dyestuffs Corporation, Ltd., British Synthetics, Ltd., Brotherton and Co., Ltd., Colne Vale Dye and Chemical Co., Ltd., Hickson and Partners, Ltd., J. W. Leitch and Co., Ltd., Major and Co., Ltd., J. C. Oxley's Dyes and Chemicals, Ltd., James Robinson and Co., Ltd., Scottish Dyes, Ltd., United Indigo and Chemical Co., Ltd., and Williams Bros. and Co.

Synthetic Ammonia and Nitrates, Ltd.

The samples of products exhibited by this company include agricultural chalk (carbonate of lime). The chalk contains approximately 2 per cent. sulphate of ammonia and is precipitated during the production of sulphate of ammonia. It is sold in the form of a slightly damp powder, entirely free of lumps. It is readily spread by means of a spade, and under certain conditions has been used successfully with an ordinary mechanical distributor, although this method of liming is not recommended owing to the fact that larger amounts are usually required on the land than can be delivered through a distributor. One ton of agricultural chalk will have the same effect on the land as approximately 16 cwt. of high grade ground limestone with the very material added advantage of a small percentage of sulphate of ammonia.

The use of lime for agricultural purposes is, unfortunately, considerably neglected in this country and especially in the North of England, and there are thousands of acres of land, both grass and arable, which would amply repay a heavy dressing of lime. The reasons for this neglect of lime are not hard to find. Money is scarce, and the high cost of lime to the farmer has prevented any considerable outlay, so that the opportunity of obtaining large quantities of lime at a low cost should prove a great advantage to the farming industry. Lime is the keynote of success on many soils which are naturally sour, and the increased use of artificial fertilisers in conjunction with more intensive methods of cultivation has emphasised the importance of lime as an essential part of the system of manuring.

Another interesting product is ammonium nitrate, dry and containing 34·6 per cent. nitrogen. Synthetic Ammonia and Nitrates, Ltd., propose to manufacture ammonium nitrate on a large scale in the near future. Plant is being erected for this purpose, and it is anticipated that the product will be on the market during the next twelve months. The sample of ammonium nitrate exhibited has been manufactured by the company on a small experimental plant.

The Gas Light and Coke Co.

The company's exhibit cannot fail to interest visitors in any way connected with the chemical industry or with one of the many branches of trade which employ chemical products. In view of the constantly increasing demand for road materials, the company's activities in their production deserve special mention. The company is one of the largest makers of distilled tar in the country, and the tar is universally recognised as being in the front rank. The company now also supplies a tar compound under the designation "Bectaphalt," which is specially prepared to meet the requirements of surveyors, and may be confidently expected to take a leading position amongst materials of this nature.

Of the more highly refined products, special interest attaches to beta naphthol in view of the efforts which the British dyemaking industry is putting forth to establish itself in the world's markets. These endeavours depend for their success upon proper supplies of intermediates being readily available. Beta naphthol is one of those in which the Gas Light and Coke Co. specialises. The company's plant for the manufacture of this article is on such an extensive scale that the total requirements of the United Kingdom could be supplied. Another intermediate prepared on a large scale is salicylic acid. A fascinating product which can be put to a very great variety of uses is Prussian blue. An examination of the fine range of samples will repay makers of paints, paper, inks and kindred articles. From blues one turns naturally to prussiates of soda and potash, both of which are worthily represented in the display. Liquid and crystal carbolic acid also deserves special mention. The former article is supplied to meet the requirements of the leading specifications and is free from naphthalene.

The company is also one of the largest producers of sulphate of ammonia, pitch and creosote, the annual output in each of these articles amounting to tens of thousands of tons. It will be readily understood that to cope with such enormous quantities of material, extensive and up-to-date plant is required. Such facilities are possessed by the company, and the works at Beckton on Thames are so situated and equipped as regard despatch of goods, both by rail and water, that the largest orders can be carried out expeditiously.

B. Laporte, Ltd.

This firm shows a wide range of barium compounds including barium peroxide, of which they are the only English manufacturers. For the past thirty years England has held the premier position in connection with this product, both in regard to strength and purity. Continental makers of barium peroxide vary from 75 to 86 per cent., as against the English standard of 88/90 per cent. Moreover, in addition to its superiority from a merely chemical point of view, the "Laporte Brand" possesses certain physical characteristics, for instance, colour, fineness, softness and ready solubility, which stamp it as an extremely high grade article and particularly well adapted to the production of hydrogen peroxide, for which purpose it is chiefly used. The manufacture of barium peroxide, as carried on at Laporte's extensive works at Luton, is linked up with the production of a number of important intermediates and by-products, including barium sulphide, carbonate, hydrate and monoxide, all of which form part of the firm's exhibit.

The firm have for a long period been known as the leading manufacturers of hydrogen peroxide, which naturally occupies a prominent position on their stand. The various commercial qualities from 10 volumes to 120 volumes (*i.e.*, from 3 per cent. to 36 per cent.) are extensively employed as bleaching and oxidising agents in many branches of the textile and other trades. The hydrogen peroxide of 120 volumes is of the highest strength produced on a commercial scale in any part of the world; B. Laporte, Ltd., are the sole manufacturers. The firm are also producing a special hydrogen peroxide, of a high degree of purity, possessing a remarkable stability, which is particularly adapted for medicinal and

toilet purposes. This is differentiated from the ordinary peroxide of commerce by the registered trade mark of "Genoxide."

All the raw materials necessary to the production of the aforementioned commodities are indigenous to this country and only British labour is employed. Crude mineral barium sulphate (barytes), of which there are huge deposits in various parts of the United Kingdom, enters the works and after conversion into barium peroxide, from which is prepared hydrogen peroxide, reappears as a by-product generally known as "Blanc Fixe" and widely utilised in the manufacture of enamel paints, printing inks and pigment lakes. A recently patented process which has been elaborated in their research laboratories enables the firm to produce blanc fixe of a superfine grade, for use in the glazing of art papers.

Sodium perborate, another notable exhibit, a derivative of hydrogen peroxide, and a most interesting member of the family group of oxygenated compounds, has in recent years assumed a position of considerable importance in connection with several industries. This salt, in the form of a white dry powder, perfectly stable in all climates, with a composition represented by the formula $NaBO_3+4H_2O$, and containing 10·4 per cent. of active oxygen, may be regarded as solidified hydrogen peroxide in combination with borax. It constitutes, therefore, an ideal whitening agent for use in high class laundries, and Laporte, Ltd., claim to have been the pioneers in introducing perborate to the laundry trades some sixteen years ago. Perborate is approximately equal, weight for weight, to hydrogen peroxide of 70 volumes.

One group of Laporte's exhibits, comprising a number of the firm's specialities, under the designation of "Laundry Requisites," appeals mainly to laundry managers.

The attention of bakers and confectioners is particularly drawn to the "Laporte Brand" of acid pyrophosphate of soda.

Thomas Tyrer and Co., Ltd.

This firm's exhibit is strikingly arranged in the form of a castle, which may be said to symbolise the prominent part that Thomas Tyrer and Co. have taken in the history of chemical industry in this country. Tyrers were chemical pioneers, and a number of now widely used chemicals were first manufactured at the Stirling Chemical Works, two notable examples being hydrogen peroxide and pure phosphoric acid. Arranged round the "Towers of Tyrer" are specimens of a few of many chemicals manufactured by this firm. Bismuth salts occupy a prominent position, and one cannot fail to notice the beautiful examples of crystallised bismuth metal, showing the remarkable way the iridescent colours of the oxidation film on the crystal facets. The visitor will also note the interesting difference in "bulkiness" of the two 1 lb. samples of bismuth carbonate shown. This difference is obtained by varying the conditions of manufacture without altering the composition of the material. "Light" bismuth carbonate is preferred by the pharmacist when dispensing this substance in mixtures as it does not readily settle to the bottom of the bottle, while the tablet maker generally uses the "heavy" variety.

An attractive series of "scale" preparations should also be noted, ferric ammonium citrate being the chief member of this class. "Scaling" is an elegant method of dealing with chemicals which are very difficult or impossible to obtain in crystal or powder form.

Though specialising in pharmaceutical chemicals, Thomas Tyrer and Co. also make a very wide range of substances which are used in a variety of ways and in industries too numerous to mention. Analytical and research chemicals, paint and rubber pigments, photographic chemicals and food preservatives are but a few. A number of examples of these chemicals may be seen on the "fortifications" of Stirling Brand Castle.

Albright and Wilson, Ltd.

One of the general purposes of this firm's exhibit is to demonstrate the use of chemicals in rendering wood fireproof and in preserving stone from decay. The exhibits include a deal fireproofed door, a deal box for preserving valuable papers, a mahogany safe of fireproofed wood and other fireproofed samples. The chemicals which confer the property of inflammability to the wood are present in all the interstices as well as within the vessels of the wood themselves. The innermost layer is as efficiently protected by the "oxylene" process as the outermost. In fact, the treatment is essentially an internal treatment. Incidentally it may be mentioned that the oxylene process renders the wood unpalatable to many of the common wood pests.

The exhibits were fireproofed by the Timber Fireproofing Co., Ltd., of Market Bosworth, owners and workers of the oxylene process, with chemicals specially manufactured for them by Albright and Wilson. Every builder and carpenter in the country can obtain from the T. B. Co. fireproofed wood of any kind and in any quantity.

The silicon ester stone preservative also shown is used for delaying the further decay of stone and brickwork in cathedrals, abbeys, churches, castles and other national, municipal and public buildings where there is an æsthetic or historical value in the decaying stones themselves. Similarly it is used to prolong the effective life of these materials in all other buildings either from sentimental or economical motives, and to avoid or postpone and delay the decay of the stone and brick in new buildings. The rapidity with which apparently indestructible stones are fretted by the normal agencies of the atmosphere, to say nothing of the new agents which in modern life house, factory and transport pours into the air would astonish those who have not had to cope with it, although evidence can be seen on all sides in the comparatively new buildings in our great cities. Dr. A. P. Laurie, as the result of many years of study in the problem, sought a cement which could be introduced into the surface layers of the stone (1) to strengthen any crumbling part, (2) to leave behind only pure silica, which itself resists all the destructive gases in the atmosphere of an industrial community, and (3) still to leave the building stone porous.

Particulars of silicon ester, and how best to use it can be obtained by those practically interested in it by writing to Albright and Wilson, Ltd.

A New Era in Chemical Publishing

Convincing as is the general evidence which the Chemical Exhibition affords of the great recent advances in British chemical production and in chemical scientific and industrial research, the exhibit of Ernest Benn, Ltd., perhaps, sums up and illustrates this progress more simply than any other. In association with the publishers of THE CHEMICAL AGE, this firm has recently embarked on an ambitious programme of scientific, art, and technical publications, believing that standard works of reference, written by recognised authorities and produced in first-class style, would be widely welcomed by the chemical and other industries here and in America. So completely has their faith been justified, that their books on chemistry, physics, and their different industrial applications already constitute a library in themselves, and may be said to inaugurate a new era in chemical and scientific publishing in this country. The Benn lists testify not only to the wealth of new knowledge and thought which the research of the past decade especially has made available, but to the eager demand to be possessed of it on the part of chemists and physicists all over the world.

To realise how thoroughly this new field of technical publication has already been explored, scientists and technicians should consult the catalogues. Here they will find how wide the range of choice is in chemistry and physics, chemical engineering, gas and fuel technology, oil and colour chemistry, mining and metallurgy, etc. What is known as the Technical Chemical Series includes a thoroughly comprehensive series of monographs covering the whole field of technical chemistry.

Of special interest perhaps in connection with the exhibition is that unique volume, *Chemistry in the XXth Century*, valuable to-day as a brilliant and dispassionate examination of the present state of chemical science, and likely to be invaluable as a piece of history a generation hence. The American Chemical Society has paid this work the compliment of taking it as the model for a similar work in connection with the jubilee of the American Society. What this book does for the scientist, the sixpenny "Chemical Industry" pamphlets accompanying it have done for the general public. British chemistry has found in them an adequate contemporary interpretation, and is to-day better understood than ever before. The Benn stand, in a word, shows what can be done —what, indeed, has been done—for science and industry by the intelligent co-operation of publisher, scientist, and technician.

The Chemical Engineering Library

A Review by Professor E. C. Williams

THE CHEMICAL ENGINEERING LIBRARY. London: Ernest Benn Ltd., 6 Volumes, 6s. each. *The Technology of Water*, by A. A. Pollitt; *Sulphuric Acid Concentration, Vol. I, By Hot Gases, Vol. II, In Heated Vessels*, by P. Parrish and F. C. Snelling; *Crushing and Grinding Machinery*, by H. Seymour; *Screening and Grading of Materials*, by J. E. Lister; *Organisation of Production*, by J. W. Curtis.

These six volumes form the advance guard of a series of monographs on limited sections of chemical and chemical engineering operations. They are planned as works of reference for the specialist at a price which should render them easily accessible to all readers. How far these two objects, specialist treatises and low price, are compatible is open to doubt, but to the general reader, whether director, works manager, or student, who wishes to obtain in a short compass a general view of the present practice in any particular section of the subject these monographs should prove of great value.

In any attempt to deal with chemical engineering subjects it is unavoidable that a good deal of attention should be paid to descriptions of plant, but where the whole space available is only some 130 pages, it would in the writer's opinion be preferable to concentrate on the underlying principles of operation, an aspect rarely dealt with, rather than upon detailed mechanical descriptions which can usually be obtained quite readily from the plant makers. The failing of many previous books on chemical engineering is that they have done little beyond list and describe plants. The present series is marked by a real attempt to discuss principles of operation and to weigh critically factors governing the choice of plant for specific operations. The individual volumes written by different authors naturally vary widely in this respect, and of course all subjects do not lend themselves so readily to this mode of treatment. All the volumes, as might be expected from Messrs. Ernest Benn, Ltd., are attractively bound and printed, with simple well chosen line drawings which have lost very little in the process of reduction.

Technology of Water

The Technology of Water is rather in the nature of an essay on the nature, uses, and treatment of water than a description of the industrial processes or plant; there is, indeed, only one illustration of plant in the book. The chief sources and impurities of natural waters are first described, followed by a discussion of the particular needs of a large variety of industries from the point of view of water supply and the effect of water impurities. The suitability of different waters for boiler feed, brewing, and textile industries calls naturally for special mention. This section and also a later section on the treatment of waters for industrial purposes will prove of great value to manufacturers, and might well have been extended at the expense perhaps of the intermediate sections upon the sources and treatment of potable waters, a subject more allied to public hygiene than to chemical engineering. The writer would have liked to see more comparisons of the cost of treatment by the various methods when operated on different scales. The vitally important subject of treatment of industrial waste waters is not touched upon. This might well be a subject for a future volume.

Sulphuric Acid Problems

Sulphuric Acid Concentration (2 Volumes).—These volumes are entirely different in conception and treatment. They give an excellent description of the present practice of sulphuric acid concentration, and by dividing the subject into two parts make a logical distinction between methods of working which are fundamentally different from both the chemical engineering and physical chemical standpoints. At the same time there is sufficient liaison between the two volumes to show the relative merits and demerits of the two processes.

Attention generally is for fundamentals, and where plant is described attention is drawn rather to the materials and the way in which they are employed than to purely mechanical details of construction, though the important dimensions and lay-out of plant are adequately described and illustrated. The introduction of heat balances and an analysis of the thermochemistry of the process of concentration shows how the application of quantitative physical chemical principle is of inestimable importance to the plant manager and designers This is real progress in chemical engineering and a welcome sign. In this connection a slight misstatement (Vol. I, p. 24) should be pointed out; the quantity "H" referred to is not the differential heat of dilution of (H_2SO_4. Aq.) but the total heat of dilution of unit weight of SO_3 with any stated weight of water. The equation as stated is, however, correctly employed in subsequent calculations and the error has probably been repeated from "*Technical Records of Explosive Supply, No. 3*," where it also occurs. Incidentally the authors do a good service by bringing some of the information and methods from these Government publications to the attention of a wider public. These records, to a discerning reader, are an excellent education in real chemical engineering.

Both volumes are packed with information not readily accessible elsewhere on plant construction, properties of materials, and practical "wrinkles" on operation, all given in a readable and at times almost racy style which carries the atmosphere of the actual factory and the impress of personal experience in a way not often found in books of this nature. The authors have obviously collected their data from a wide field, which explains perhaps a somewhat versatile use of units in different sections of the book: Fahrenheit and Centigrade degrees, C.H.U.'s and B.T.U.'s, grains per cubic foot and per cent. by volume, concentration of sulphuric acid in degrees Twaddell, Beaume and H_2SO_4, inches, centimetres, feet and metres, all jostle each other through its pages in a delightful way, which is, perhaps, excusable for the aforesaid atmosphere of present industrial practice which it undoubtedly gives.

A valuable side of both volumes is the frequent tabulation of costs of production and the comparison of costs by the different processes. Volume II concludes with a review worth careful consideration of the trend of future developments.

Crushing, Grinding, Grading, etc.

Crushing and Grinding Machinery.—The author is of the opinion that no useful laws for the solution of grinding problems have yet been evolved and that the choice of crushing machinery is therefore a matter of experience and actual trial of the various types of machine on the product under consideration; also that it is almost impossible to make useful *a priori* comparisons between either the various machines or classes of machines. This view explains the general subsequent treatment of the subject, which for the most part consists of a description of some scores of breakers, crushers, rolls, and disintegrators along the lines of the usual maker's pamphlets, with guiding remarks upon the type of material best suited to a particular machine. There is a lot of truth in the author's view quoted above, but the reader will from the contents of the book be able to abstract a fair amount of information as to the suitability of different types of machine for particular problems. He will also find it a useful little reference book for the leading types of crushing machinery.

Screening and Grading of Materials will for many readers form a very suitable companion to the above. Many more industries than formerly are now realising the necessity for the careful grading of products and for cheap mechanical methods of separating impurities from low grade materials such as sand and coal. The author deals mainly with descriptions of various types of plant and the nature of the materials for which they are most suited; the treatment is essentially practical and little attention is paid to the more theoretical aspects of the subject. Chapters are devoted to the various types of screens, picking belts, screen conveyors, washers, classifiers, froth flotation plants, and to air, magnetic and electrostatic separation processes. Useful information is given on the capacities and power consumptions of the various plants.

Organisation of Production.—The question of works organisation is such a debatable one, and the methods employed vary so much with the type of production under consideration, whether it be the mass production of a simple article or the production of a large and varying number of chemical products by complex and infinitely variable processes that one is inclined to doubt the possibility of writing a satisfactory monograph

at all, particularly for the chemical industry, unless it be confined solely to general principles. The author wisely does not attempt to legislate for the industry as a whole, but confines himself to one special branch with which he is intimately connected. The book records an excellent example in great detail of how a specialised type of production should be handled. The particular example is the erection of a complete installation of vertical retorts. The book should be rather read for the principles it contains than copied for the mechanism by which those principles are applied. The position is well put in the opening sentence of Chapter III, "No scheme of organisation of production will be satisfactory if it simply emanates from the office, and is not consolidated by clear discussion and clear understanding between those who have to carry it out." This is the essence of the matter; countless excellent schemes have come to grief because they were not conceived and fashioned by, or in close collaboration with the individuals, of all grades, on whose wholehearted co-operation the success of any scheme, however rigid, depends.

The author's plan will well repay careful study. He describes in detail, with reproductions of the charts, reports, graphs, and other records concerned, the method by which co-ordination of work between the management, estimating and contracting, design, production, erecting and purchasing departments is secured, from or before the acceptance of a contract to the final completion of the work. The author would not claim that his methods could be transplanted *in toto* to other forms of production, but the basic principles are sound and will be studied with profit by the managements of widely different industries. E. C. W.

Proposed Protective Duty on Superphosphate

Completion of Board of Trade Inquiry

THE Board of Trade Committee which is considering the application of the Fertiliser Manufacturers' Association for a duty on imported superphosphate, held a short public sitting on Thursday, May 14, the remainder of the day being occupied in private deliberation and consultation.

The CHAIRMAN, referring to the amendment in the number of people employed in the industry from 16,500, as originally stated to the Board of Trade, and also put before the committee when the case was opened, and since reduced to 5,500, said that every opportunity would be given to the applicants for explaining this serious difference.

Sir CASSIE HOLDEN then addressed the committee with regard to the claim that the conditions abroad constituted an export bounty which, if established, among other matters, would entitle the committee to say that a duty ought to be granted.

In answer to the committee he said that he claimed to include in the bounty items in manufacture which involved expenditure of money in the country of origin, even if these items were not labour.

Mr. A. ELLIS, addressing the committee on behalf of the National Farmers' Union (which covers England and Wales), the Scottish Farmers' Union and the Ulster Farmers' Union, submitted that this was a case in which an application was made to help one depressed industry at the expense of another, that other being a basic industry of the country and one of great national importance—namely, agriculture.

The applicants at first stated there were 16,500 men employed in the industry, which figure was later reduced to 5,500. Agriculture employed one million people.

The final meeting of the committee was held on Monday.

Mr. ROBINSON WATERFALL, managing director of the Avon Manure Co., Bristol, and also associated with several other companies who are members of the Fertiliser Manufacturers' Association, stated that the committee was liable to draw entirely fallacious conclusions from a confidential statement as it stood unless the position was explained. In the first place he mentioned that the figure of 5,500 employees now stated by the applicants to be the number engaged in the industry was not in his opinion excessive for the production of 528,000 tons per annum, having regard to the present trade conditions. This figure included 500 clerical staff. It was necessary to take into account the nature of the factory as to whether its trade was wholesale or retail and to what extent it was either, and also the capacity of the plant and the percentage of that capacity at which it is working. If a 20,000 ton factory was working at full capacity its output per worker was much greater than if the factory was only working at 75 per cent. or 50 per cent. of its full capacity. At the same time a fully mechanically operated factory would probably cost more to operate than a smaller factory using a larger amount of hand labour, if the mechanically operated factory was not working at its full capacity. Indeed, these up-to-date plants were only economical when working at or very near their full capacity.

Dealing with some of the firms, the outputs per worker for which had been handed to the committee, Mr. Waterfall said that there were some obvious miscalculations in this, because in one or two cases the output per worker was given as more than that which was known to be the case in the very up-to-date Dutch plants, whereas he doubted whether any plant in the world could beat the Dutch works. Witness added that for normal working in this country he should say that an average of 150 to 155 tons per man per annum would be a reasonable figure to take for all works.

The CHAIRMAN pointed out that taking 160 tons and an output of 528,052 as the total output, there should only be 3,300 men employed, whereas the applicants' revised figure was 5,000, leaving out 500 clerical workers.

Sir CASSIE HOLDEN said that the average figure of 150 to 155 —not 160—was on the basis of 75 per cent. output of the total capacity of the works, whereas many of the works in this country were working at 50 per cent. of their capacity whilst others were well below that figure. He admitted that it was hard to get a perfectly accurate figure, but he was relying upon 5,000 men, leaving out the clerical staff.

Sir CASSIE HOLDEN then addressed the committee generally in summing up the case and first dealt with the reasons why, when the applicants were before the Board of Trade and also subsequently when they opened their case before the committee, a figure of 16,500 men had been mentioned as the number employed in the industry, whereas, when certain discrepancies in relation to output were pointed out by the committee it was found necessary to reduce the figure to 5,500 men. The story, he said, was one of which he was not at all proud. At the same time he wished to impress upon the committee that everything that had been done was absolutely in good faith, although it must be admitted that errors had been made.

The CHAIRMAN said that the committee could accept Sir Cassie's statement.

Mr. J. B. GILL, one of the general secretaries of the National Farmers' Union, read a long document, in which he disagreed with the basis of the calculation put forward by the applicants, who had shown an advantage in the form of a bounty of over 18s. per ton, and said that at the very most he could not agree to more than 7s. 9d. per ton in certain events and it might be reduced to 5s. 11d.

Sir CASSIE HOLDEN said that he could not seriously contend that this industry was one which merely by reason of volume of employment could be described as of substantial importance, but he was able to base his case on the nature of the goods produced, which was more important in this instance than the number employed.

The CHAIRMAN: Do you ask for a duty and if so what is it?

Sir CASSIE HOLDEN replied that the applicants asked for a prohibitive duty of £1 per ton to prevent superphosphate coming into the country; at the same time, as there might well be a fear in the minds of the users that if left alone the manufacturers would impose the whole of this duty upon them, it was suggested that the prices of superphosphate in this country should be controlled by some public department, such as the Ministry of Agriculture, limiting any increase in price of 10s. per ton or a maximum in any district of 70s. per ton, which was 10s. beyond the present average price. Prices differed in various parts of the country, but the applicants were willing to accept a maximum of 70s. per ton, and if any manufacturers

in particular parts of the country were unable to make a profit at this price, owing to their special circumstances, then the industry as a whole would have to help them out. It was the suggestion of the applicants that the price should be restricted to a maximum of 70s. per ton in any part of the country, with the right to the Minister of Agriculture to modify the price at any time he thought circumstances warranted it. The industry was prepared to place itself in the hands of the Ministry of Agriculture or some other public department in this matter and leave it entirely to them.

The CHAIRMAN closed the inquiry.

Oil and Colour Chemists

Review of a Successful Year

THE Oil and Colour Chemists Association held its annual general meeting, followed by an ordinary meeting, on Thursday, May 14, at the offices of the National Federation of Associated Paint, Colour, and Varnish Manufacturers, London. The President (Dr. H. Houlston Morgan) was in the chair.

Annual General Meeting

The annual report of the Council was adopted together with the accounts. The membership increased during the year by 97, making the total 280. Of this number, 56 are associate members, and 224 ordinary members. Thanks were expressed to Dr. Morgan for his work as President during the year, and the Council showed its appreciation by nominating him as President for another year. Among other officers to whom thanks were expressed was Mr. T. Hedley Barry, who has been editor of the Association's journal for 2½ years, but has resigned.

With regard to the sub-committee formed under the auspices of the British Engineering Standards Association for the purpose of drawing up British Standard Specifications for Paints and Varnishes, the work is divided into three sections. Mr. C. A. Klein, Dr. H. H. Morgan and Dr. G. Rudorf are chairmen of the three panels. Although the work is proving difficult, definite progress is being made, and it is hoped that before long a number of agreed specifications will be issued. Owing to the activity of these panels, comparatively little work has been done by the various other committees of the British Engineering Standards Association. Meetings have been held however, in connection with shellac, dopes, and methods for the determination of viscosity in absolute units. The President has been appointed to represent the Association on a committee set up by the London Chamber of Commerce in connection with the blackening of white lead paint. The financial position, it was stated, demanded much consideration. The balance sheet showed excess of assets over liabilities of £135 7s. 2d. at December 31. The Council appealed to members to make every effort to increase membership, as, having passed the critical membership stage, all additional members help to consolidate the financial position.

Officers for the Year

The following are the officers for the ensuing year :—

President, Dr. H. Houlston Morgan (re-elected).

Vice-Presidents, Dr. J. Newton Friend, Mr. C. A. Klein, Mr. S. K. Thornley and Mr. W. J. Palmer (re-elected).

Elected to vacancies on the Council, Mr. C. A. F. Hastilow (Provincial), Mr. A. A. Drummond (London), and Mr. A. S. Jennings (Associate Member).

Hon. Secretary and Treasurer, Mr. S. G. Clifford.

On the motion of the President, seconded by Dr. M. B. Blackler (both of whom have been members of the Association since its inception), Mr. H. A. Carwood was unanimously elected an honorary life member in view of his meritorious work for the Association.

Artists' Colours

Following the annual general meeting, an ordinary meeting was held, at which Dr. Percy May, F.I.C., read a paper on "Artists' Colours," and exhibited a large number of these colours for inspection by the members. Good raw materials and careful cleanly working, he said, were of the utmost importance. The modern practice of supplying ready-mixed artists' oil colours in tubes had introduced difficulties and complications which were absent when the artist mixed his colours in the studio for use the same day. In the preparation of modern oil colours the problem was twofold. Firstly, it was to ensure that the paints should have the maximum of beauty and permanence when dried, and secondly, to ensure that the paint should remain for prolonged periods in the best physical condition for painting, and it must, therefore, undergo no change or separation in the tube. In the case of heavy pigments there was a tendency for separation to take place, and at one time it was sought to counteract this by the addition of wax or paraffin wax, but this had many drawbacks. Paints so prepared were less brilliant than those prepared with pure oil, and the wax also retarded the oxidation of the oil. More recently, however, a sounder method had been adopted of securing the best consistency. By the use of a well-bleached and matured linseed oil, allowed to oxidise to a honey-like thickness, the time of drying was shortened, and a thicker paint could be obtained, which did not separate, and which gave a very satisfactory result in painting. By a suitable choice of the degree of thickening of the oil, it was also possible to overcome to some extent the difference between slow and quick drying pigments, and to furnish artists with colours drying in approximately the same time.

Good results could also be obtained by the incorporation of amber, copal, or mastic varnishes with the oil, but whether such varnish media were actually used by manufacturers in the preparation of tube colours was doubtful, most makers using only pure matured drying oils for this purpose. Poppy-seed oil was often preferred to linseed oil for use with light coloured pigments. Usually, the oils were used plain, without metallic driers. A quick-drying jelly-like medium, known as Megilp, consisted of a pale lead drying oil with mastic varnish. The thickened oil medium was placed on the market thinned with oil of spike, turpentine, or petroleum, and was known as "Oil Vehicle." For preparing the oil colours themselves, the pigments of the best quality were ground with carefully purified and bleached oil on granite roller mills, the rakes being of hard wood. Iron should not be used, in order to avoid discoloration of light coloured pigments, such as yellow ochre.

In water colours there was a comparatively small amount of pigment suspended in a water soluble medium, a translucent effect being designed in the picture. The paint, therefore, should be of the nature of a colloidal suspension, so that the finely divided pigment did not aggregate and settle out. Very fine grinding of the pigment was necessary, and the medium should be of the nature of a protective colloid. This was usually a strong solution of gum arabic of good quality, and, to avoid the coagulating action of salts, it was preferable to use distilled water for preparing the gum solution. The cake-colours of water-colour boxes were essentially the same, but, in addition to the gum arabic, a binding medium was used, glycerine or syrupy glucose being generally used. The suspension of pigment and gum solution, together with the binding medium, was evaporated and dried to the right consistency, and the mass cut to the desired shapes. Materials such as dextrin, tragacanth and cherry-gum had been used besides gum arabic as water-colour media. Glossy water colours were produced by the addition of small quantities of copaiva balsam, wax, or mastic to the gum.

Perhaps the most interesting painting process, from the chemical and physical point of view, was "tempera." At present, "tempera" usually denoted a medium containing egg-yolk, but in its wider sense it was used to cover all painting media which were essentially emulsions of oil and water. Egg-yolk contained a large amount of water, and also egg-oil, the emulsifying agents being the vitellin and albumen of the egg. It was one of the most perfect and stable emulsions known. Modern egg "tempera" contained almost always a drying oil, such as linseed or poppyseed, in addition to the egg-yolk, which was the emulsifying agent. Other "tempera" paints had been used, consisting of a drying oil and aqueous solutions without egg, the emulsifying agents being casein or gum. With casein, however, there was more tendency to decomposition than with egg. Soap "tempera" had also been used, but one drawback of soaps was their alkalinity, which limited the range of pigments. One leading British firm had recently introduced "tempera" paints which did not contain egg, and appeared to consist of an emulsion of a drying oil with an aqueous emulsifying agent. It was generally very difficult to obtain permanent emulsions of this type without the use of egg, and success in this direction had probably only been rendered possible by the use of one of the modern colloid mills.

The British Association of Chemists

The Title "Chemist"

DESPITE the proverb, it is occasionally emphatically true that a name is a very important matter indeed, and this, to the uninitiated, trivial question was one which had a large share in bringing into existence the British Association of Chemists.

The energetic propaganda that the Association has carried out in this direction has done much to enlighten the public regarding this term, but it is our common experience to discover well-informed persons who still confuse the chemist with the pharmacist, and who at best suppose that the technical chemist is merely a pharmacist who has carried his training a little farther than the ordinary chemist and druggist.

It has been, and still remains, the Association's aim to legalise the term chemist in such a way that it shall not be applied to any who are not recognised as properly qualified in chemical science. The question is, however, one which bristles with difficulties, since the title "Chemist and Druggist" is one which the pharmacists have a legal right to use, and any attempt to insist that the pharmacist should cede the former is, by reason of established tradition, difficult to press.

As in some other matters, England is in this many years behind the times. In Spain and France degrees are granted in pharmacology, and this subject possesses an academic status as well defined as any other branch of science. A pharmacist has no power to describe himself as a chemist, and would not wish to use that power if he had. It is, therefore, a little difficult to understand why—since a faculty of pharmacology has, a little late, been established at London—the pharmacists should wish, with such tenacity, to adhere to a practice so old fashioned.

The question is one which is, however, almost vital to the profession of chemistry. The term "qualified chemist" has at present no exact meaning except so far as it applies to the pharmacist, and it is very difficult to decide under what terminology the chemical profession can be legalised if the term chemist is denied to it. The pharmacist's position, however, differs, since this term itself is ancient and dignified, and any change that they may make merely entails the disuse of a term, the appropriateness of which is, to say the least, doubtful.

This is, again, a question where the expressed opinion of a large majority is necessary before it is possible to take action. There is little doubt that if it were possible to convene a large and representative conference, representative both of chemistry and of pharmacy, there would be little difficulty in settling the question once and for all. The Association has the highest respect for the profession of pharmacy, and believes that it would have little difficulty in arriving at a settlement that would be satisfactory to both parties. The executive of the Association believes the true obstacle to be the fact that the profession of chemistry is not united, and that an organised body such as the pharmacists feel disinclined to enter into negotiations which may not be binding upon all the members of our profession. This is yet another aspect of the argument for unity. Those who hesitate to support the Association fail to realise the important principle that this question of terminology involves, but it is hoped that sufficient has been said to indicate that the establishment of this principle is a very important matter indeed. The Association cannot deal with any universal question where it has not the support of the large majority of qualified practitioners, and it appeals to all such to support it in every possible way.

Inquiries concerning the Association may be addressed to the General Secretary, The British Association of Chemists, Empire House, 175, Piccadilly, W.1. H. T. F. R.

A Cold Electro-Galvanising Process

ONLY pure zinc is claimed to be deposited by the Bianco galvanising process and the results of tests and practical applications of the process are embodied in a booklet recently issued by the Anglo-Galvanising Co., Ltd., of Abbey House, Victoria Street, London, S.W.1. An advantage is that the process is always worked cold, and it produces uniformity of work because no other chemicals are ever added. It regenerates completely direct from the anodes and consequently costs are confined to initial outlay.

Proposed Protection for Gas Mantles

THE Committee appointed by the Board of Trade to inquire into and report on an application made by the Incandescent Mantle Manufacturers' Association for the imposition of a duty on gas mantles, held the first sitting on Monday at the Board of Trade, Westminster. Sir Frederick Mills is chairman of the Committee, and the other members are Sir John Barran and Mr. J. Arthur Aiton. Mr. C. K. Hobson, Board of Trade, is secretary.

The applicants were represented by Mr. P. H. Soper, managing director, Monarch Mantles, Ltd., Parkfield Works, Leyton; and Mr. N. L. Macaskie appeared on behalf of the Group of Mantle Importers and Wholesalers of the London Chamber of Commerce.

Mr. P. H. Soper said the applicants were an association of the principal firms of manufacturers of incandescent gas mantles, and the output of their factories amounted to 97 per cent., or over, of the total British manufacture. The essential ingredient of the gas mantle was nitrate of thorium, from which its illuminating property was derived. Nitrate of thorium was a product extracted from monazite sand, large deposits of which were found at Travancore, in Southern India, and in Brazil. The German chemical and mantle manufacturers, working together, obtained control of these supplies; and British manufacturers became dependent on Germany. They were also subjected to foreign competition in the form of dumping of the finished materials. It had only been since the Travancore deposit was freed from German control by the India Office and the Board of Trade that the manufacture of nitrate of thorium, and other materials, was established in this country, and that the British manufacturers had been placed in a position to enter into competition.

After the lapse of the 33⅓ per cent. duty, which lapsed on August 19, 1924, the imports from Germany for the last quarter of 1924 represented 27·91 of the total trade. Now they were being undersold, and they had been compelled to offer mantles at prices below, or barely covering, the actual costs of manufacture. Unless an improvement was shown in forward booking witness believed more short time would have to be worked this summer than in any other year. In the last quarter of 1924 employment was lower than it had ever been in any corresponding period of the preceding four years.

Replying to the Chairman, witness said that in the fourth quarter of 1924 the employees numbered 1,750, and were as few as 1,211 in 1922. The average German mantles were costing importers somewhere in the region of 22s., as against 25s. 6d. in this country.

Mr. Macaskie.—We dispute these figures.

The Committee adjourned till Friday, May 22.

The Spanish Dye Market

DYE manufacturers in Spain have obtained an increase in the duties on aniline colours, amounting to 1.20 gold pesetas per kilo, according to *Drug and Chemical Markets*. This duty, however, proved insufficient to prevent German and British manufacturers from selling their products in the Spanish market. The national dye manufacturers of Spain went to the Government and asked for further protection. The result of this petition was a new duty of 4 gold pesetas per kilo on aniline powders and 2 gold pesetas per kilo on pastes, representing, together with the gold surcharge in force at present, a duty of 6 and 3 paper pesetas per kilo, respectively, on aniline powders and pastes. Although foreign dye makers have lost a part of the Spanish dye business, raw materials which can always be sold to the Spanish combine include dinitrochlorbenzol, H acid, paranitraniline and betanaphthol. The last two are used to a large extent by the textile trade. Raw materials are sold c.i.f. cash against documents in Barcelona.

Competing in Spain are three Swiss firms—Ciba, Sandoz, and Geigy. The British Dyestuffs Corporation has a warehouse, also the English firm of Holliday of Huddersfield.

Until the first of this year all the German firms carrying on business in Spain were represented separately. As a result of the organisation going on within the German Interessengemeinschaft, the Germans have been reducing the number of Spanish agents. In that way the Barcelona agencies of Badische and Bayer have absorbed the remainder. In the Spanish textile district in Catalonia there are only two German agencies.

Carnegie Scholarship Awards

It was announced at the meeting of the Iron and Steel Institute on Friday, May 8, that the Carnegie Scholarships had been gained by the following :—

Mr. W. Crafts, of Reading, Pa., U.S.A.—£100, to assist him in carrying out a research on the production of carbonless chromium by the method of leaching and electrolytic deposition of chromium from chromite.

Mr. W. H. Dearden, Royal School of Mines, South Kensington—£100, to carry out an investigation on the specific heat of iron below 400° C.

Mr. T. H. Turner and Mr. E. W. Fell, The University, Birmingham—£100, jointly, to investigate methods of detection and the nature of permanent deformation or strain in steel.

Mr. R. Higgins, of Glasgow—£100, to study the volume changes in cast iron brought about by repeated heating and cooling.

Mr. H. O'Neill, The University, Manchester—£100, to investigate the nature of hardness in relation to cold-working and machining properties of metals.

Mr. J. H. Partridge, The University, Birmingham—£50, to continue study of the electric and magnetic properties of cast iron.

Mr. L. B. Pfeil, University College, Swansea—£100, to continue studies of the growth of large crystals by annealing strained iron.

Mr. C. H. Adamson, of Sheffield, and Mr. G. S. Bell, of Lincoln—£50, jointly, to continue research on cast-iron transverse test bars and engineering formulæ.

Mr. D. W. Berlin, of Stockholm, Sweden—£50, to continue study on the specific gravity of liquid iron and steel and other metals of high melting point.

Mr. A. L. Curtis, of Chatteris, Cambridge—£100, for research on steel moulding sands and their behaviour under high temperature.

Mr. E. R. Taylor, Municipal Technical School, Birmingham —£50, to continue studies on the effect of manganese and sulphur on the mechanical properties of white heat malleable cast iron.

New Rapid-Hardening Cement

A critical report has been made by Dr. Oscar Faber, consulting engineer to H.M. Office of Works and one of the leading British authorities on cement, upon the recently discovered rapid-hardening British Portland cement "Ferrocrete," a material by means of which many English local authorities are already shortening the period of work upon house-building, road-making and repair, etc. Tests made under Dr. Faber's supervision at the City and Guilds Engineering College, South Kensington, revealed that concrete cubes made of the new cement have crushing strengths 3½ times as great as ordinary cement at four days, 3¼ times as great at four weeks, and 2½ times as great at three months. Reinforced concrete beams made with the new cement will stand a breaking load approximately three times as heavy at four days, twice as heavy at four weeks and 1½ times as heavy at three months as beams made with ordinary cement. There is indication, he adds, that these last mentioned ratios (in each case) are maintained at greater ages. The results of the tests indicate, he concludes, that "rapid hardening 'Ferrocrete' is a product of very great practical importance indeed." Copies of the report are available free of charge from the British Portland Cement Association, 20, Dartmouth Street, London, S.W.1.

A New German Process

We are informed that two German professors of chemistry, one of them the director of an important State laboratory and also, in an advisory capacity, a director of several large chemical and metallurgical works, have invented an entirely new process for manufacturing oxalic and tartaric acid, which can also be applied to the manufacture of arsenic, arsenious acid, and (indirectly) arsenated lime. The process is described as simple and practical, and does not require costly installations. The cost of production of the chemicals mentioned is claimed to be very low. Patents have been applied for, and owing to the novelty of the method, it is thought possible they may prove to be master-patents, affording an excellent protection.

Canadian Magnesite in the British Market

Shipments of dead-burned magnesite have recently been made to British steel makers from the Grenville magnesite mines of Canada. These mines are situated in the province of Quebec, several miles to the north of the Ottawa river, about midway between Montreal and Ottawa, according to a report from the Department of Mines, Ottawa.

Magnesite was discovered in this district in 1900, but the first mining was not attempted until 1900. Up to the beginning of the war considerable development had been done but production was small. Shaft kilns were employed for producing caustic magnesia which is used in oxychloride cements for stucco and floor construction, but no clinkered or "dead-burned" magnesite was made. During the war supplies of European magnesite were shut off from North America. This resulted in a rapid development of the Canadian mines and the installation of high temperature rotary kilns for the production of dead-burned magnesite. A large output of crude, caustic and dead-burned magnesite was soon attained, much of which was consigned to the United States. It was used principally in the manufacture of magnesite brick and as linings for basic open-hearth steel furnaces. It is said to have given good results and, since the war, the steel makers of Canada have continued to use it. The use in the United States continued until the application of a high customs tariff effectively shut it out from that market.

With a view to extending trade, the producers have recently approached British consumers and have secured some orders. With the lowering of ocean freight and the great improvement in exchange the Canadian product is being laid down at a price to meet that of the Eastern European magnesite.

The Shakespear Katharometer

In connection with the Royal Society Conversazione last week, the Cambridge Instrument Co., Ltd., exhibited some experiments illustrating the application of the thermal-conductivity method of gas analysis. The Shakespear katharometer (which the firm use in their electrical CO_2 outfits) possesses several characteristics which make it suitable for gas analysis work in connection with search problems. It is a "percentage" instrument with small capacity, so that small quantities of gas can be measured. It also has the advantage of having a short time lag. The instrument is direct reading and is very sensitive to certain gases having different thermal-conductivities from one another. As examples of the usefulness of the katharometer they propose to demonstrate the following experiments :—

1. The measurement of the respiration of gas from a single insect, *e.g.*, a blue-bottle fly.
2. The measurement of water vapour in air by a reaction replacing water by hydrogen.
3. A simple method of estimating a small quantity—(say, one milligram) of CO_2 as carbonate in a mixture.
4. A new method of demonstrating the partial separation of two gases from a uniform mixture by a temperature gradient within the gas. This effect was first pointed out by Professor S. Chapman and was called by him "thermal diffusion."

This latter is an extremely pretty and interesting experiment.

Brewing Research Questions

The Institute of Brewing held its annual dinner in London on Saturday, May 9, the President, Mr. Robert Valentine Reid, presiding.

Mr. Justice Tomlin said that of those agencies which had taken a vigorous part in establishing the essential co-operation of science and industry, the Institution of Brewing was one of the earliest.

The President said that the Institute was now trying to put its research scheme on a firm financial footing. The chief lines of their research were barley and hops. There was a close co-operation between the farmer, the maltster, and the brewer, and one of his visions for the future of their research was a central station including an experimental brewery and malting works.

Sir William Pope replied to the toast of science and the fermentation industries.

Chemical Matters in Parliament

Silk Duty Revenue

Mr. Guinness (House of Commons, May 6), in reply to a question, said that the estimated revenue from the silk duties was :—

	Full year.	1925-26.
	£	£
Natural silk	4,500,000	2,500,000
Artificial silk	2,500,000	1,500,000
Total.....	£7,000,000	£4,000,000

Mr. Pethick Lawrence (House of Commons, May 7) asked the Chancellor of the Exchequer what were the sums that he estimated to obtain in the year 1925-26, and in a full year from the Customs duties on artificial silk ?

Mr. Churchill said that the figures were as follow : 1925-26, £600,000 ; full year, £1,000,000.

A member was asked to await the introduction of the Finance Bill for the official definition of artificial silk.

Low-Temperature Distillation

Mr. Clarry (House of Commons, May 12) asked the Secretary for Mines what proportion of our commercially-available coal would be suitable for a process of low-temperature distillation and production of oil on an economically and commercially sound basis.

Colonel Lane-Fox said that further experience was required in the operation of these processes on a commercial scale before it would be possible to answer this question.

Mr. Spencer asked whether the Government were going to make any further plans with a view to assisting this process in the hope that it might possibly become commercially sound in the immediate future, and was informed that this was anticipated.

Mr. M. Jones asked what class of coal was likely to be used most successfully in these experiments ; and said that surely it was common knowledge in the mining industry that it was the most volatile class of coal alone that could possibly succeed in these experiments ; and why could not the classes be given?

Colonel Lane-Fox, in reply, said that all coal would produce results by distillation, but the question was, what coal can be made a commercial success.

Mr. Hardie said that in view of the unsatisfactory answer he would call attention to this subject on the motion for the adjournment at an early date.

Colonel Lane-Fox (House of Commons, May 12), in reply to a question, said that he was carefully considering what there was that the Government could usefully do beyond what was already being done by the Fuel Research Board on the subject of low temperature carbonisation, but he was not yet in a position to make a definite statement on the subject.

Cement Firm's Wage Dispute

Questions were asked (House of Commons, May 13) with regard to a dispute concerning the East Anglian Cement Co., of Shepreth, Cambridgeshire, who, it was stated, were not carrying out the wages agreed to by the Joint Industrial Council.

Sir A. Steel-Maitland said that he was not prepared to institute a public inquiry, but his department was available for assisting in a settlement, and he would consider any further relative information.

Artificial Silk Factories

Sir A. Steel-Maitland (House of Commons, May 13) said, in reply to a question, that there were twenty-seven factories and one workshop engaged in artificial silk manufacture. The numbers employed were not known.

Scientific Research Expenditure

Mr. Guinness (House of Commons, May 15), in reply to a question, said that, including the cost of buildings maintained by the Office of Works, but exclusive of the cost of administrative staff (except in the case of the Department of Scientific and Industrial Research), it might be stated that a sum of £4,045,000 was provided in Estimates 1925-26 for scientific research of all kinds.

Oil Separators

Mr. Davidson (House of Commons, May 15), in reply to a question, said that the present strict orders on the subject of discharge of oily ballast water should prevent any serious pollution of coastal waters and ports by Admiralty vessels. The Admiralty was watching closely the development of oil separators. Various types had been examined, and many demonstrations witnessed. Although considerable advance had been made in the efficiency of oil separators, the standard necessary to justify adoption by the Admiralty had not, as yet, been attained.

Synthetic Ammonia Treasury Grant

Mr. J. Beckett (House of Commons, May 15) asked the Financial Secretary to the Treasury whether, in view of the fact that the purpose of the Trade Facilities Act was to give credit facilities for such schemes only as could not otherwise be immediately put in hand, he would say why credit to the extent of £2,000,000 had been granted to Synthetic Ammonia and Nitrates, Ltd., a company with an authorised capital of £5,000,000, the shares of which were owned by Brunner, Mond & Co., Ltd., whose authorised capital was £15,000,000.

Mr. Guinness said that the Trade Facilities Act Advisory Committee, who were charged with the duty of investigating applications for guarantees and recommending the Treasury to give guarantees in suitable cases, were fully satisfied in this case that as a result of the guarantee the work would be put in hand and proceeded with more rapidly than would otherwise have been the case.

Mr. Beckett asked whether the Committee was aware of the extremely generous way in which the firm had already been dealt with by the Government.

Mr. Guinness said that he did not think that that affected the particular question. He was satisfied that the Committee did go into it and were fully satisfied that at least an equivalent amount of work for the guarantee would be put in hand at once, which otherwise would be delayed.

Mr. Beckett asked whether it was not possible, in view of the large credit to this firm, to see that they restored the Government reports which they had in their possession.

Foreign Machinery for Sugar Beet

Mr. Wood (House of Commons, May 18) in reply to questions said that foreign machinery recently imported for sugar beet manufacture was valued at approximately £120,000. He said that probably it was not impossible to get machinery from this country, but said that during the debate on the Sugar Subsidy Bill he pointed out that the provision requiring British machinery to be used was a new condition which had been imposed by this Government, and he did not feel at liberty without exposing the Government to a charge of breach of faith, to upset the contract already entered into.

Fuel Research

Colonel Lane-Fox (House of Commons, May 18) in reply to a question said that some preliminary experiments with coke containing between 8 per cent. and 10 per cent. volatile matter had been made. No difficulty was experienced in burning it in powdered form. No experiments had been made with coke of lower volatile content. The whole question of the use of fuel in pulverised form was receiving continuous consideration.

Mr. Clarry asked the Secretary for Mines if his Fuel Research Department had investigated the Freeman process of low-temperature carbonisation ; and, if not, would he undertake such investigation.

Colonel Lane-Fox said that no close investigation of the Freeman process had been made, but the plant at Willesden was inspected by Sir George Beilby, the late Director of Fuel Research, in 1922. Negotiations had been taking place with a view to the possibility of a test being conducted on this process under the scheme for testing low-temperature carbonisation plants announced by the Government in July last, but up to the present no definite application for such a test had been submitted by the parties interested.

Power Transmission Appliances

Crofts (Engineers), Ltd., of Thornbury, Bradford, have issued a new guaranteed stock catalogue, which they claim marks a new departure in the manufacture of power transmission appliances. The guarantee given with this catalogue is a serious attempt to meet the requirements of industry to-day—namely, absolute certainty of prompt despatch of goods ordered. In order to meet this guarantee the works have been completely reorganised and equipped for quick and accurate production. Large stores have been erected and stocks of castings and finished parts accumulated. The first installation of the Schurmann cupola in this country has been erected and the latest type of sand slinging machines to bring their foundry practice completely up to date.

From Week to Week

A BEET SUGAR FACTORY is to be erected at Peterborough at an estimated cost of £300,000.

FATAL ACCIDENTS reported in the chemicals, etc., industry during April numbered two. There were five cases in the clay, glass, etc., industries.

THE ADDRESS of Dr. E. F. Armstrong, the new managing director of the British Dyestuffs Corporation, is now 70, Spring Gardens, Manchester.

IMPORTS OF SUGAR FROM POLAND for the first three months of this year totalled white sugar 56,552 metric tons and raw sugar 34,511 metric tons.

MR. A. J. LUSH and Mr. C. F. Blagden, formerly members of the staff of Victor Blagden and Co., Ltd., London, were on May 8 elected directors of the company.

APPLICATIONS ARE INVITED for the post of junior assistant under the directorate of explosives research at Woolwich.—The Chief Superintendent, Research Department, Woolwich.

PROFESSOR B. HELFERICH, of Frankfort-on-Main, has been invited to occupy the chair of chemistry at Greifswald in succession to Professor R. Pummerer, who has been transferred to Erlangen.

FIRE DAMAGED the tar-distilling works of Stainsby and Lyon at Knottingley, on Friday, May 15. An 8,000 gallon still of naphtha oil leaked and the naphtha ignited. The contents boiled over and were also ignited.

SIR ALFRED MOND was elected president of the Society of British Gas Industries in succession to Mr. D. Milne Watson at the annual meeting in London on Wednesday. Sir Alfred spoke at the dinner following the meeting.

THE ROMANES LECTURE was delivered by Sir William Bragg at Oxford, on Wednesday, on "The Crystalline State." The point of his lecture was that we now have the X-rays as a means of studying the crystal.

THE FIRST DIRECTOR of the new Gas Appliance Testing Laboratory established at Cleveland, U.S.A., by the American Gas Association, will be Mr. R. M. Conner, research engineer of the Portland Gas and Coke Co., Portland, Oregon.

APPLICATIONS ARE INVITED for a limited number of fellowships available for chemists of post-graduate standing who wish to adopt a career in industrial chemistry. Fellowships are valued at from £250 to £300. Applications to Director of the Salters' Institute of Industrial Chemistry, Salters' Hall, St. Swithin's Lane, London, E.C.4, before June 30.

DISEASES OF OCCUPATION reported during April included one case of mercurial poisoning and three of aniline poisoning. Cases of lead poisoning numbered 24, and of the ten cases of epitheliomalous ulceration nine were recorded in the oil industry. The dyeing and finishing industry recorded two instances of chrome ulceration and the chrome tanning industry four cases.

DISCUSSING THE DANGERS OF GLASS IN FOOD, Leeds City Analyst, Mr. B. A. Burrell, said that danger resulted from air bubbles that burst when heated and from moulded jars where the two halves fitted imperfectly. Experience had shown that machine-made jars were less likely to contain particles than the hand-made. There was not much danger with the better-class English-made jars; the cheaper kind were mainly imported from Germany.

THE HONORARY DEGREE OF D.Sc. has been conferred by Manchester University on Dr. Niels Bohr, Director of the University of Theoretical Physics, Copenhagen. Dr. Bohr was awarded the Nobel Prize in 1922. When he was Reader in Mathematical Physics in the University of Manchester he was closely associated with Sir Ernest Rutherford in working out the planetary theory of the atom which Sir Ernest Rutherford first proved on experimental grounds. Professor Bohr has established himself as one of the greatest of living physicists.

VISCOUNT LEVERHULME, at a meeting of the board of directors of Lever Bros., Ltd., held on Thursday, May 14, accepted the position of governor of the company; Mr. Francis D'Arcy Cooper (hitherto joint vice-chairman) was appointed chairman; and, in addition to Mr. Harold Robert Greenhalgh, who was appointed vice-chairman in 1921, and will continue in that office, Mr. John McDowell (hitherto a managing director) was appointed a vice-chairman. The above-named four gentlemen have been appointed by the late Viscount Leverhulme as the executors and trustees of his will.

EXPORTS OF CHEMICALS and allied products from the United States during the first quarter of this year were valued at $36,034,000 and showed an 11 per cent. increase over the corresponding period of last year. This figure was higher than that for any single quarter for 1924, according to official figures. Although the exports of industrial chemicals during the first three months of 1925, amounting to $2,470,000, showed only a gain of 1 per cent. compared with 1924, the shipments during the month of March were higher than for any single month throughout 1924. Larger amounts of acids and anhydrides, aluminum sulphate, acetate of lime, bleaching powder, copper sulphate, and formaldehyde, were exported during the present quarter than during the first quarter of 1924.

MR. ROBERT MOND has decided to sell the remaining portions of his Combe Bank estate, near Sevenoaks, including the model farm and sites.

THE BRITISH SCIENCE GUILD held its annual dinner in London on Tuesday. Sir Frank Heath, Sir Richard Gregory, and Sir William Pope were present.

A PROPOSED CHAIR OF HIGHWAY ENGINEERING at London University was mentioned by the Master of the Worshipful Company of Pavoirs at a dinner in London on Friday, May 15.

UNEMPLOYED INSURED WORKERS in the chemicals, etc., industry during April totalled 8,673—7,200 men and 1,473 women. This represents a very slight increase over the previous month.

VICKERS LTD. have secured an order for 100 of their single battery electrically-regulated train lighting equipments for the new passenger carriages building for the London Midland and Scottish Railway.

R. W. GREEFF AND CO., New York, have become American selling agents for Norsk Hydro Elektrisk Kvaelstofaktieselskab of Oslo, Norway, manufacturers of calcium nitrate, sodium nitrate and sodium nitrite.

THE HARRIS FURNACE CO., LTD., of Windsor Street, Attercliff Road, Sheffield, inform us that they are moving into premises at 427, Queen's Road, Sheffield, to which address all communications on and after May 20 should be addressed.

THREE MEN WERE KILLED and extensive damage was caused by an explosion at the explosive works of Curtis and Harvey, near Faversham, on Friday, May 15. The trouble originated in the press house, where the powder is stored before being made into cakes.

A PROTEST AGAINST RUBBER PRICES and a suggestion that standard smoked sheet should range between 1s. 3d. and 1s. 6d. per lb., were made by the General Executive of the Indian Rubber Manufacturers' Association, Ltd., on Wednesday. Copies of the resolution are to be sent to the Prime Minister and the Board of Trade.

AN IMPORTANT AUCTION SALE OF NITRATE GROUNDS will take place on September 11 before the Junta de Almoneda, Santiago-de-Chili (Public Auction Committee). The Chilian Government will sell to the highest bidder over minimum price nitrate grounds in the provinces of Tarapaca and Antofagasta. Details are obtainable from the Chilian Legation, 3, Queen Street, London, W.1.

A PRIZE OF $100,000 (£20,000) for the invention of a process for producing synthetic opium at a price low enough to kill poppy growing in India and China is being offered by a New York chemical manufacturer, Mr. Herman Metz. He stipulates that the inventor must relinquish process rights and agree to its use in accordance with the requirements of the International Opium Agreement.

SYNTHETIC FOOD PRODUCTION is visualised as a possibility by Mr. Hoover, United States Secretary of Commerce, according to Washington reports. Referring to Professor E. C. C. Baly's synthetic sugar research he said that the implications of this discovery were far-reaching. He also mentioned the commercial production of methanol, a synthetic substitute for wood alcohol, as a coup by German chemists that would be followed by even more important discoveries by American chemists.

A SYMPOSIUM and general discussion on the physical chemistry of steel-making processes will take place at a joint meeting of the Faraday Society and the Iron and Steel Institute to be held on Monday, June 8, from 3.30 to 7.30 p.m., at the Institution of Civil Engineers, London. An introductory address will be delivered by Sir Robert Hadfield, and papers will be read by Dr. A. M'Cance (Glasgow), Dr. P. MacNair (Swansea), Mr. T. P. Colclough (Rotherham), Mr. J. H. Whiteley (Stockton-on-Tees). Among those who will also take part in the discussion are Professor C. H. Desch, Dr. W. H. Hatfield and Mr. Cosmo Johns, all of Sheffield. Communications will also be read from Mr. A. L. Feild (New York), Mr. F. T. Sisco (Dayton), and Professor J. B. Ferguson (Toronto).

Obituary

MR. CHARLES RICHARD BLOXCIDGE, of "Bramcote," Alderbrook Road, Solihull, chairman and managing director of Samuel Thornley, Ltd., oil merchants, drysalters and varnish manufacturers. He was previously associated for many years with Gilman and Sons, wholesale druggists, of Birmingham. He was chairman of the Birmingham Oil Merchants and Drysalters' Association.

MR. ROBERT DEMPSTER, aged 70, at Capetown, head of the gas engineering firm of R. and J. Dempster, gas plant works, Newton Heath, Manchester. He was a magistrate on the Salford Bench.

MR. THOMAS PILKINGTON, aged 91, a member of the Pilkington family that has owned glass works in the St. Helens district for several generations. He was for many years a director of Pilkington Brothers, Ltd., and St. Helens plate glass works, with branches in Belgium and America.

MR. GEORGE MARGERISON, chairman of the directors of Joshua Margerison, Ltd., soap manufacturers, of Preston, on Monday, in his 70th year. He was the third son of the founder of the firm and had travelled extensively.

MR. EDMUND ASHWORTH, managing director of Joseph Ashworth and Sons, Ltd., oil cake manufacturers, Frodsham Bridge, in his 69th year.

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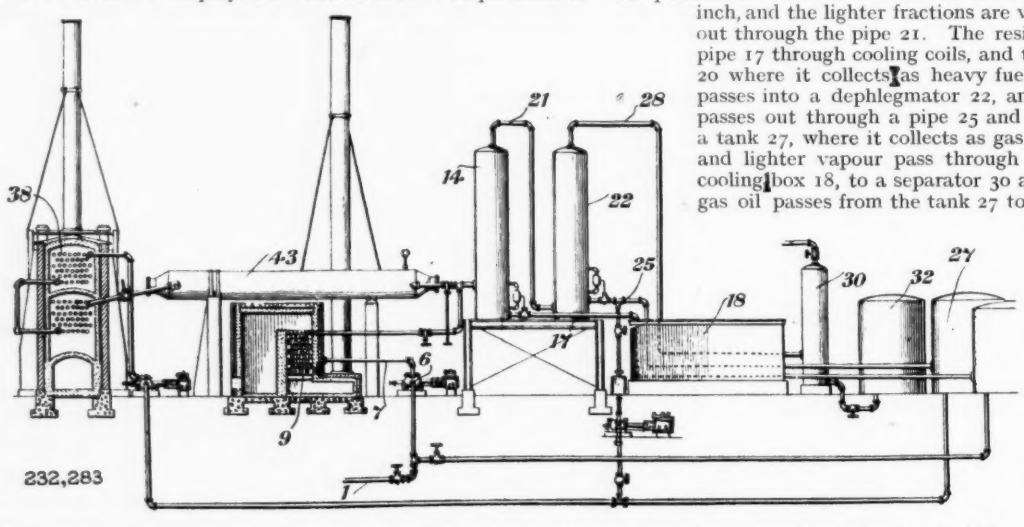
Abstracts of Complete Specifications

231,944. Purification of Liquid Hydrocarbons. F. B. Thole and S. T. Card, Meadhurst, Cadbury Road, Sunbury-on-Thames. Application date, January 11, 1924.

The process is for removing sulphur compounds such as organic sulphides, polysulphides, and hydrosulphides from liquid hydrocarbons by means of hypochlorite solutions, such as sodium or calcium hypochlorite. In using such solutions, it has been found necessary to employ a slight excess of free alkali to prevent chlorination of the hydrocarbons, and to prevent decomposition of the hypochlorite solution during storage. In this invention, the action is accelerated by reducing the free alkali content immediately before or during treatment. For this purpose, carbon dioxide is admitted through perforated pipes in the reaction vessel, the liquid being stirred or agitated to ensure the uniform distribution of gas, and mixture of the hypochlorite solution with the oil. The proportion of free caustic soda is reduced practically to zero. Alternatively, a solution of ferrous sulphate, ferric sulphate, ferric chloride, manganese sulphate, magnesium sulphate, or zinc sulphate may be mixed with the hypochlorite so as to precipitate an insoluble hydroxide and thus remove the free alkali. An example is given of the treatment of a sulphur-containing oil with a hypochlorite containing caustic soda as a stabiliser, and 34·5 per cent. of the hypochlorite was found to have been used in ten minutes. If the hypochlorite is neutralised by adding ferric sulphate, it is found that 79 per cent. of the hypochlorite is used up in the same period, owing to the reduction of alkali. A similar example is given of the effect of the use of carbon dioxide.

231,945. Sodium Perborate, Manufacture of. Deutsche Gold und Silber Scheideanstalt vorm. Roessler and O. Liebknecht, 7-9, Weissfrauenstrasse, Frankfurt-on-Main Germany. Application date, January 11, 1924.

In the treatment of alkali peroxide in aqueous solution or suspension with boric acid or alkali borates and carbon dioxide or alkali bicarbonates, to produce a precipitate of sodium perborate in saturated sodium carbonate solution, it has been found that the yield of perborate is increased if sufficient carbon dioxide is employed to convert at least 10 per cent. of free alkali into bicarbonate. The resulting liquor contains sodium bicarbonate and carbonate, which may be used to produce further quantities of sodium perborate by adding suitable quantities of boric acid or alkali borates, and sodium peroxide. In this case, the lye containing bicarbonate is converted into perborate before separating the perborate obtained according to the main process. It has been found decomposition of the perborate may be avoided by adding a small quantity of a protective substance such as alkaline earth or magnesium silicate, alkali silicates, or organic compounds such as phenols or cresols. It has been found that the addition of magnesium silicate prevents the decomposition of the final product, even in moist condition. In the first stage of the process, when carbon dioxide is used, the temperature must be about 0° C., but in the second stage of the process the temperature may be higher without affecting the yield.



232,283

232,041. Separation of Organic Compounds from each Other. I. Traube, 29, Schlossstrasse, 5, Charlottenburg, Germany. Application date, October 15, 1923.

In this invention use is made of the difference in capacity of organic compounds for being wetted by water, to separate them from each other. Thus compounds such as anthracene, phenanthrene, and carbazol are not capable of being wetted by water, while other substances such as naphthalene, diphenylamine and alizarine are readily wetted with water and will sink in water. These two classes of compounds can thus be separated by agitating with sufficient water to permit the compounds which are not wetted to float. The separation is facilitated by the addition of a " flotation poison " such as albumen, saponin, glue, gelatine, humus, gall, sulphite cellulose, lye, molasses, and colloids in general. As an example, anthracene and alizarine may be readily separated by this means, and similarly azoxybenzene and carbazol. If one of the compounds is an oil of specific gravity greater than 1·0, it will usually form an emulsion which can then be separated from the other compound, and the oil recovered. This method may be applied to the separation of crude naphthalene containing 10–20 per cent. of oil.

232,283. Converting Heavy Hydrocarbons into Gasolene and Light Hydrocarbons. F. W. Golby, London. From Gasoline Products Co., Inc., 140, Broadway, New York. Application date, December 10, 1923.

The process is for treating fuel oil, crude oil, topped crude oil, emulsified crude oil, etc., to obtain lighter hydrocarbons. The oil is passed through a pipe 1 to a pump 6, and then through a pipe 7 to furnace tubes 9, where it is heated sufficiently to produce some distillation. Thus crude oil may be heated to 410°–600° F. while fuel oil or topped crude oil would be heated to 850° F. The pressure is usually not above 100 lb. per square inch. The oil passes into an evaporator 14, the pressure in which is maintained at 10–15 lb. per square inch, and the lighter fractions are vaporised and pass out through the pipe 21. The residue passes into a pipe 17 through cooling coils, and thence to the tank 20 where it collects as heavy fuel oil. The vapour passes into a dephlegmator 22, and the condensate passes out through a pipe 25 and cooling box 18 to a tank 27, where it collects as gas oil. The benzene and lighter vapour pass through the pipe 28 and cooling box 18, to a separator 30 and tank 32. The gas oil passes from the tank 27 to economiser tubes 38, and thence through the hotter portion of the furnace, where it is raised to cracking temperature in the vessel 43. The oil then contains 20–70 per cent. of gasolene, and is discharged into the vaporiser 14 where 50–98 per cent. evaporates. This product is thus combined with the oil which reaches the vaporiser 14 from the furnace 9, which is at a higher temperature. This mixture of the two oils ensures the vaporisation of a higher proportion than would otherwise be the case, so that a larger yield of gasolene is obtained. It is found that the heavy residue contains only a small proportion of free carbon.

232,347. Mineral Oils, Process for Distilling and Purifying. W. B. Lindsay, 13, Victoria Street, London, S.W.1, and W. B. Davidson, 12, Akenside Hill, Newcastle-on-Tyne. Application date, January 23, 1924.

The solid fuel required for the process is burned in a separate furnace under such conditions that the combustion products

are substantially free from oxygen. The gas is diluted with the cooler gas such as that which has been passed through the still, and the mixture is then intimately mixed with the oil in the still. The oil may be sprayed into the gases, or distributed over packing material and instantaneously vaporised. The gas and oil then pass to a series of fractional condensers, in which the vapours are washed with the corresponding condensate. The gas from the last condenser passes to a scrubber where it is washed with heavy oil to recover any light spirit. This process has the advantage of economy in fuel. If superheated steam is used as the distilling medium, only about 23 per cent. of the total heat is available for the evaporation, but by using hot combustion gases about 80 per cent. of the total heat is available.

232,358. Distillation and Carbonising of Coal, Peat, and Other Carbonaceous Materials. F. M. Perkin, Albion House, 59, New Oxford Street, London W.C.1, and The Bettisfield Trust Co., Ltd., 8, Queen Victoria Street, London, E.C.4. Application date, January 31, 1924.

The material is externally heated, and is also heated by the sensible heat of inert gas and/or steam in a highly superheated condition by passing these through the material. The material is preheated before passing to the retort. The material is conveyed to the retort by a bucket or like elevator through which flue gases from the retort may be passed to preheat the material to 250° C. The outlet of the retort may be cooled by water conduits to enable the material from the retort to be removed without quenching.

232,392. Hydroxybenzaldehydes, Manufacture of. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester, and H. H. Hodgson, 136, Paley Road, Bradford. Application date, March 19, 1924.

In the usual method of preparing *m*-hydroxybenzaldehyde, benzaldehyde is nitrated, reduced, the amido compound diazotised, and the diazonium group replaced with hydroxyl, but the yield is not satisfactory. In this process, the yield is improved by rapidly cooling the amino-benzaldehyde after the reduction is complete, to prevent decomposition, and then the diazotisation is effected without delay. The diazotised product is distilled in a current of steam from a strong acid solution. In an example, benzaldehyde is nitrated with nitric and sulphuric acids at as low temperature as possible, and the nitration mixture poured on to ice, and washed until neutral. The mixture of *o*- and *m*-nitrobenzaldehydes is reduced with sodium hydrosulphite solution which causes a rise in temperature. The reaction product is then cooled, mixed with concentrated hydrochloric acid sufficient to combine with the amines, with the nitrite to be added, and with the excess of hydrosulphite. After diazotisation, the product is decomposed by dropping it into boiling sulphuric acid through which steam is passing. The salicyl aldehyde distils over, mixed with some anthranil, and the *m*-hydroxybenzaldehyde remains in the solution. A yield of 60–70 per cent. is obtained.

232,431. Hydrogen, Process for the Production of. Synthetic Ammonia and Nitrates, Ltd., Billingham. Stockton-on-Tees, Darlington. From E. Collett, Munkedamsverein 27, Oslo, Norway. Application date, May 29, 1924.

This process depends upon the reaction in which mercury vapour is treated with steam to obtain mercury oxide and hydrogen. The mercury oxide is then further heated under a reduced pressure to liberate the oxygen, and the remaining mercury is then used again. The hydrogen produced in this process is free from carbon monoxide and dioxide, which act as contact poisons in the manufacture of ammonia from its elements. In carrying out the process, the mercury vapour and steam are mixed at 360° C., and the gaseous mixture is then cooled in a heat interchanger in which fresh steam is heated. When sufficient mercury oxide has accumulated in the heat interchanger, the latter is disconnected and heated under reduced pressure to recover the mercury. The hydrogen gas may be passed through a scrubbing tower or electrical dust precipitator to recover any mercury in the gas. The reaction between the mercury and steam may be performed under pressure to obtain compressed hydrogen.

232,456. Rotary Drums for the Distillation of Coal and the like. E. C. R. Marks, London. From Kohlenscheidungs G.m.b.H., 100, Friedrichstrasse, Berlin. Application date, July 11, 1924.

The object is to avoid the deformation of the ends of rotary retorts due to the warping of the walls in consequence of the high temperature. The retort is provided with an inner supporting frame throughout its length, and extended beyond both its ends. The running rings and the driving device for the drum are mounted on the projecting part of the frame. The drum ends may then be comparatively weak, since the supporting and driving strains are not transmitted to them.

Note.—Abstracts of the following specifications, which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention:—208,716 (Aluminum Co. of America), relating to production of aluminium, see Vol. X, p. 20 (Metallurgical Section); 211,487 (A. Schwarz), relating to apparatus for treating hydrocarbons, see Vol. X, p. 446; 213,933 (Metal Traders, Ltd.), relating to production of chamber crystals, see Vol. X, p. 629; 217,936 (Akt.-Ges. für Anilin Fabrikation), relating to manufacture of dyestuffs containing sulphur, see Vol. XI, p. 222; 218,278 (A. Mailhe), relating to production of petroleum-like hydrocarbons from fatty acids, glycerides, and vegetable and animal oils, see Vol. XI, p. 245; 219,327 (Naamlooze Vennootschap Philips' Gloeilampenfabrieken), relating to separation of hafnium and zirconium, see Vol. XI, p. 298; 222,836 (A. F. Mayerhofer), relating to production of hydrofluosilicic acid, see Vol. XI, p. 608; 225,546 (H. Suida), relating to production of gases rich in ethylene, see Vol. XII, p. 117; 229,282 (Chemische Fabrik Griesheim Elektron), relating to production of phosphorus, phosphorus pentoxide, and phosphoric acid, see Vol. XII, p. 414.

International Specifications not yet Accepted

230,423. Alkali Cyanides. Norsk Hydro-Elektrisk Kvaelstofaktieselskab, 7, Solligaten, Oslo, Norway. International Convention date, March 8, 1924.

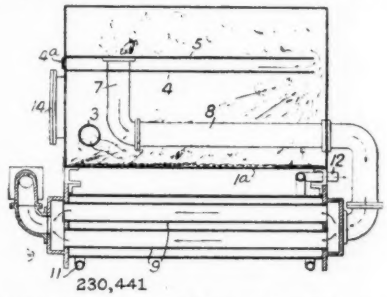
Hydrocyanic acid is absorbed from gases in caustic soda solution of 47·7 per cent. strength at 40° C. On cooling, alkali cyanide crystals are deposited, and are dried in a current of gas free from carbon dioxide first at a low and then at a higher temperature.

230,432. Synthetic Drugs. Chemische Fabrik vorm. Sandoz, Basle, Switzerland. International Convention date, March 10, 1924.

Ureides of perhydrogenated aromatic and fatty aromatic carboxylic acids and their α-bromo substitution products are prepared from the acids or their derivatives such as nitriles, esters, amides, and chlorides, by treating with urea. Several examples are given.

230,441. Sulphur Burners. L. F. Pollain, 11, Rue François Ponsard, Paris. International Convention date, March 6, 1924.

In burning sulphur, the proportion of trioxide is increased by supplying additional air to the combustion products, and



230,441

then superheating them. Sulphur is burned on the hearth 1ª by air admitted through a pipe 3. Additional air is admitted between partitions 4, 5, so that it becomes heated, and then mixes with the combustion gases, which are passing into the space above the partition 5. The mixture passes through the pipes 7, 8, in which it is further heated, and then through water-cooled pipes 9 to cool it. A preliminary cooling may be effected by passing the gases through a chamber below the hearth 1ª.

230,447. Concentrating Acetic Acid. H. Suida, 12, Hamerlinggasse, Mödling, Lower Austria. International Convention date, March 8, 1924.

Dilute acetic acid is vaporised, heated to 150° C., and the vapour treated with solvents which are not miscible with

water, such as phenols other than carbolic acid, cresols, polyvalent phenols and their ethers, hydrogenated phenols, and mixtures such as creosotes from wood tar or coal tar, and liquid fatty acids boiling above 150° C. such as higher homologues of acetic acid or oleic acid. The solution is then distilled in vacuo to recover the acetic acid.

230,457. AMINO SULPHONIC ACIDS. Farbenfabriken vorm. F. Bayer & Co., Leverkusen, near Cologne, Germany. International Convention date, March 4, 1924.

To obtain ω-aminoalkyl-aminonaphthalene sulphonic acids, an aliphatic diamine is treated, in presence of a soluble sulphite, with sulphonic acids of naphthols, naphthylamines, aminonaphthols, dioxynaphthalenes, or naphthalenediamines; ethylene, propylene, butylene, etc., diamines may be used. Examples are given of the preparation of 1-(aminoethyl)-aminonaphthalene-4-sulphonic acid, 2-(aminoethyl)-aminonaphthalene-7-sulphonic acid, 2-(aminoethyl)-amino-8-naphthol-6-sulphonic acid, 2-(aminoethyl)-amino-8-naphthol-3 : 6-disulphonic acid with a little ethylene-2 : 2^1-diamino-8 : 8^1-dioxynaphthalene-3 : 3^1 : 6 : 6^1-tetrasulphonic acid, ω-aminobutyl-2-naphthylamine-7-sulphonic acid; also nitroso compounds of these products.

230,486.—DYES. Durand and Huguenin Akt.-Ges., Basle, Switzerland. International Convention date, March 7, 1924.

Specification 186,057 (see THE CHEMICAL AGE, Vol. VII., p. 716) describes a process in which leuco derivatives of vat dyes are converted into soluble esters by treating with chlorosulphonic acid in the presence of a tertiary base. The process is now extended to the production of similar esters of other compounds which can be so converted, particularly compounds which after reduction contain groups into which the acid residue may be introduced. The ester salts can be reconverted by saponification or acid oxidation to the parent substances, which are deposited in a finely divided condition. Examples of the application of the process to dyeing are given.

230,487. ORGANO-ARSENIC COMPOUNDS. L. Cassella and Co. Ges., Frankfurt-on-Main, Germany. International Convention date, March 10, 1924.

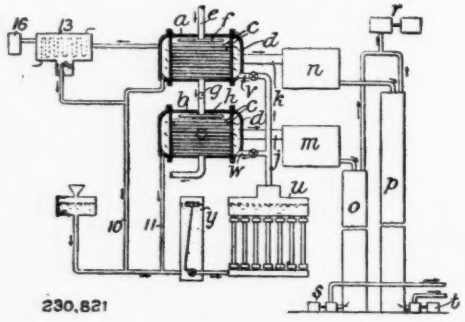
3-chloro-4-hydroxyphenylarsinic acid is nitrated in sulphuric acid solution, and the nitro derivative is reduced in alkaline solution to yield the amino compound. The acetyl derivative may be obtained from the amino compound.

230,774. FERRIC OXIDE. O. S. Neill, 8, Bent Street, Sydney, Australia. International Convention date, March 12, 1924.

Ferrous sulphate is dehydrated and ground to 200 mesh fineness, and then roasted in a rotating inclined furnace. The dehydration is effected at 400°–500° C., and the roasting at 800°–900° C. A current of air preheated to 700° C. is drawn through the furnace, and the concentration of the evolved sulphur trioxide should not exceed 8 per cent. The ferric oxide is suitable for use as a pigment.

230,821. DISTILLING HYDROCARBON OILS. Sun Oil Co., 1428, South Pennsylvania Square, Philadelphia, Pa., U.S.A. Assignees of A. E. Pew, Bryn Mawr, Pa., and H. Thomas, Ridley Park, Pa., U.S.A. International Convention date, March 17, 1924.

The oil is distilled in a tubular heater by means of mercury



vapour. Mercury is distilled in a boiler *u* and the vapour passes through pipes *v*, *w* to headers *d* of heat exchangers *a*, *b*. The vapour then passes through tubes *c* to heat the oil, and returns by pipes 10, 11 to the boiler *u*. Mercury vapour is condensed in the coil 13 and also returns to the boiler, and a lower pressure is thus maintained in the upper heater. Oil is supplied through a pipe *e* and passes as a film over the tubes *c* of the two heaters in series. Oil vapour passes through pipes *k*, *j* to condensers *m*, *n* and collecting vessels *o*, *p*, maintained at reduced pressure.

LATEST NOTIFICATIONS.

233,649. Manufacture of styrol and its homologues. Naugatuck Chemical Co. May 7, 1924.

233,669. Process for the recovery of ammonia from the waste waters in the manufacture of artificial filaments by the cuprammonia process. Bemberg Akt.-Ges., J. P. May 6, 1924.

233,698. Process for the manufacture of an aluminous cement of high initial strength. Voisin, U. B. May 6, 1924.

Specifications Accepted with Date of Application

215,012. Sulphurized compounds of phenol, Manufacture of—and their application as mordants. Soc. Alsacienne de Produits Chimiques. April 27, 1923.

216,499. Hydrogen peroxide, Manufacture of—by distillation of persulphuric acid or solutions of persulphuric acid salts. Oesterreichische Chemische Werke Ges. May 22, 1923.

222,093. Purifying oils and fats in vacuo by means of steam or the like, Process of. Metallbank und Metallurgische Ges. and W. Gensecke. September 18, 1923.

225,187. Hafnium and zirconium compounds, Manufacture of. Naamlooze Vennootschap Philips' Gloeilampenfabrieken. November 15, 1923.

225,509. Low temperature distillation of coal. Kohlenscheidungs Ges. November 28, 1923.

233,011. Gas, Purification of. J. W. Cobb and H. J. Hodsman. January 4, 1924.

233,029. Ores containing oxidised copper compounds, Treatment of. T. J. Taplin, junr., W. G. Perkins, and Metals Production, Ltd. January 29, 1924.

233,031. Filtering apparatus. W. Paterson. January 29, 1924.

233,038. Combustible gas, Manufacture of. H. O. Loebell. January 31, 1924.

233,040. Synthesis of ammonia. L. Casale. January 31, 1924.

233,080. Hydrocyanic acid and cyanides, Manufacture and production of. J. Y. Johnson. (*Badische Anilin and Soda Fabrik.*) February 19, 1924.

233,137. Gaseous fuel from lime kiln gases, Manufacture of. British and Foreign Lime and Power Corporation, Ltd., and T. A. Reid. May 3, 1924. Addition to 188,022.

233,188. Basic lead sulphate, Manufacture of. W. J. Mellersh-Jackson. (*Eagle Picher Lead Co.*) June 26, 1924.

233,196. Organic acids and bases from beetroot molasses, Process of separating and collecting. Y. Takayama. July 5, 1924.

233,203. Soluble cellulose esters, Process of manufacturing. Soc. de Stearinerie et Savonnerie de Lyon, and P. Berthon. November 28, 1924. Addition to 201,510.

Applications for Patents

Abbott Laboratories and Marks, E. C. R. Manufacture of butyl esters of aromatic acids. 12,368. May 12.

Badische Anilin-& Soda-Fabrik and Johnson, J. Y. Manufacture of finely divided metal oxides. 12,729. May 15.

Badische Anilin-& Soda-Fabrik and Johnson, J. Y. Manufacture of dyeing compounds, etc. 12,730. May 15.

Chemische Fabrik Griesheim-Elektron. Production of azo-dyestuffs. 12,771. May 15. (Germany, June 7, 1924.)

Damard Lacquer Co., Ltd., Fleet, W. F., and Potter, H. V. Synthetic resin product. 12,707. May 15.

Dussek Bros. and Co., Ltd., and Dussek, E. A. Manufacture of varnishes. 12,851. May 16.

Graesser-Monsanto Chemical Works, Ltd., and Lefroy, H. Maxwell. Treatment of materials for combatting vermin. 12,522. May 14.

Hydrazote. Manufacture of nitrogen. 12,371. May 12. (France, May 19, 1924.)

Johnson, Matthey and Co., Ltd. Extraction of metals. 12,254. May 11.

Kilburn, B. E. D., and Norsk Hydro-Elektrisk Kvaelstofaktieselskab. Production of alkali metal silicates soluble in water. 12,832. May 16.

Klopstock, H. Electrolysis of alkali chlorides. 12,606. May 14.

Lamble, A., Latham, J. J., and United Alkali Co., Ltd. Apparatus for drying bleaching powder. 12,731. May 15.

Mackenzie, M., Outwin, E., and Sylvester, J. Distillation of tar. 12,614. May 14.

Merck, E. (Firm of). Preparation of phosphoric acid free from arsenic. 12,633. May 14. (Germany, May 14, 1924.)

Meyerhofer, A. F. Process of producing soluble carbonates. 12,863, 12,864, 12,865. May 16. (July 24, 1924.)

Soc. of Chemical Industry in Basle. Manufacture of condensation products of the anthraquinone series. 12,773. May 15. (Switzerland, August 2, 1924.)

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

May 22, 1925.

THE slight improvement which we noted last week has continued and in fact has developed slightly, there having been a better volume of trade, although the turnover is still far below what can be called normal even in these times. Generally speaking, prices are maintained. Stocks are very small.

There is not much doing in the export market.

General Chemicals

ACETONE is quietly steady at £75 per ton. There is practically no stock and spot supplies command a premium.

ACID ACETIC is unchanged at £39 per ton for 80% Technical and £40 per ton for 80% Pure.

ACID CITRIC is very slow of sale. Price 1s. 5d. per lb.

ACID FORMIC is only in fair demand. Price is a little lower at £49 per ton.

ACID LACTIC is in fair demand and is quoted £43 per ton for 50%.

ACID OXALIC.—The demand is rather slow, but second hand parcels are now nearly exhausted and the spot price is approaching manufacturers' figure. Price to-day is 3¾d. per lb.

ACID TARTARIC is very quiet. Consumers seem to be digesting stocks carried over from last year. Price is 11½d. to 11¾d. per lb.

ALUMINA SULPHATE is very quiet, the tendency remains in buyers' favour.

ARSENIC.—If anything the market is slightly better, but business is quite nominal and the price is nominal.

BARIUM CHLORIDE is in fair demand at £10 5s. per ton.

CREAM OF TARTAR is an active market, price varying from £75 to £77 per ton according to make.

EPSOM SALTS is unchanged.

FORMALDEHYDE.—The demand is very poor indeed. Price is rather lower at £40 per ton.

LEAD ACETATE continues in good demand, but the price is lower—White £44 per ton and Brown £42 per ton.

LIME ACETATE has been reduced in price and the nominal price to-day is £14 5s. per ton for Grey on 80% basis.

METHYL ALCOHOL.—There is no demand at the moment, but stocks are non-existent. Makers' prices are about £48 10s. per ton c.i.f. English ports.

POTASSIUM CHLORATE is scarce, price firm at 4¼d. to 4½d. per lb.

POTASSIUM PRUSSIATE is in fair demand at 7½d. per lb.

SODA ACETATE is very quiet, price £21 to £22 per ton.

SODA BICHROMATE is active. English makers' price is unchanged.

SODA HYPOSULPHITE is unchanged and quiet.

SODA PRUSSIATE is in rather better demand at 4¼d. per lb.

SODA NITRITE has been more inquired for and better business is reported. Price £22 10s. to £23 per ton, ex wharf.

SODA SULPHIDE is unchanged, but makers will only sell for early delivery, expecting higher prices a little later in the year.

ZINC SULPHATE is without special feature.

Coal Tar Products

There is no great change in the market position from last week.

90% BENZOL remains firm at 1s. 9d. to 1s. 9½d. per gallon on rails.

PURE BENZOL is still quoted at 1s. 11d. to 2s. per gallon on rails.

CREOSOTE OIL is steady, at 5¾d. to 6d. per gallon on rails in the North, and 7d. to 7¼d. per gallon in London.

CRESYLIC ACID has no great inquiry, and is quoted at 1s. 8d. to 1s. 9d. per gallon on rails, in bulk, for the Pale quality 97/99%, while the Dark quality 95/97% is quoted at 1s. 6½d. to 1s. 7d. per gallon.

SOLVENT NAPHTHA remains unchanged, at 1s. 3½d. per gallon on rails.

HEAVY NAPHTHA is quoted at 1s. 1d. to 1s. 2d. per gallon.

NAPHTHALENES remain stationary, and are quoted at £3 5s. to £3 15s. per ton for the lower grades, while 74/76° quality is quoted at £5 to £5 10s. per ton, and 76/78° at £6 to £6 10s. per ton.

PITCH remains unchanged at 40s. to 42s. 6d. f.o.b. main U.K. ports.

Latest Oil Prices

LONDON.—LINSEED OIL firm and in better request at 5s. to 10s. advance. Spot, £45 5s.; May, £43 15s.; June-August and September-December, £44 2s. 6d. RAPE OIL firm and 10s. higher. Crude crushed, spot, £50; technical refined, £53. COTTON OIL steady. Refined common edible, £47; Egyptian, crude, £42; deodorised, £49. TURPENTINE quiet and occasionally 6d. per cwt. lower. American spot, 80s.; May, 78s.; June, 75s.; and July, December, 74s.

HULL.—LINSEED OIL, naked, spot, £44. May and June-August, £43 15s.; September-December, £43 17s. 6d. COTTON OIL, naked, Bombay crude, £38 10s.; Egyptian crude, £40 17s. 6d.; edible refined, £44 10s.; deodorised, £46 10s.; technical, £41 15s. PALM KERNEL OIL: Crushed, naked, £42. GROUNDNUT OIL: Crushed/extracted, £48 10s.; deodorised, £52 10s. SOYA OIL: Extracted and crushed, £40 10s.; deodorised, £48. RAPE OIL: Extracted, £40 per ton, net cash terms, ex mill. CASTOR OIL and COD OIL unchanged.

Nitrogen Products Market

Export.—During the last week or two the market has been very quiet. May is always a quiet month, because it comes between the heavy demand of April and the new price scale which usually commences on June 1. The British producers have made only small sales at about £12 15s. per ton f.o.b. Considerable sales have, however, been made for June and later shipment. The British price for June and the following month is £11 15s. per ton f.o.b. in single bags with 12s. 6d. extra if double bags are necessary. This low price level is a consequence of the large production on the Continent by the synthetic processes.

Home.—The home demand is petering out. Producers' sales now amount only to about 100 tons per day. The total for the season 1924/25 will be very little in advance of that of the previous year. The very wet weather in the early spring led to considerable diminution of demand.

Nitrate of Soda.—There has been a distinctly firmer tone in the nitrate market and cargoes c.i.f. chief European ports have fetched £11 15s. to £11 18s. per ton. This is a consequence of the large movement of nitrate from the hands of dealers to consumers. One of the effects of the smaller stock carried over may lead to a higher scale for next year than was originally intended. It is understood that the price scale for 1925–26 will be announced shortly after a meeting held in Chile on the 21st inst. It is anticipated that prices will be about the same as for the present year, although a slight reduction is thought likely in some quarters.

American Market Movements

(From *Drug and Chemical Markets.*)

ARSENIC higher on spot owing to fair amount of buying. Formic acid shaded. Tin salts advanced. Barium carbonate cut again. Sodium sulphide easier. Sodium and potassium chlorates continue firm. Prussiates firmer on spot. Fair amount of activity present in heavy chemicals. Intermediates continue in slight demand with prices showing no change. Acid H reported sharply cut in some quarters. Ortho-toluidine selling at recently higher quotations. Benzene continues easy with pure weak. Toluene continues to turn easier. Solvent naphtha strong. Pyridine remains firm at recent advance.

A slight improvement was shown in the fine chemical market, although it is still exceedingly quiet. Menthol has firmed up considerably and papain has advanced sharply. Quicksilver is very weak on spot.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at retailers' works.

General Heavy Chemicals

Acid Acetic, 40% Tech.—£21 to £23 per ton.
Acid Boric, Commercial.—Prices reduced by £5 per ton. Crystal, £40 per ton, Powder, £42 per ton.
Acid Hydrochloric.—3s. 9d. to 6s. per carboy d/d., according to purity, strength and locality.
Acid Nitric, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.
Acid Sulphuric.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 65s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
Ammonia Alkali.—£6 15s. per ton f.o.r. Special terms for contracts.
Bleaching Powder.—Spot, £10 10s. d/d; Contract, £10 d/d. 4 ton lots.
Bisulphite of Lime.—£7 10s. per ton, packages extra, returnable.
Borax, Commercial.—Crystal, £25 per ton. Powder, £26 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)
Calcium Chlorate (Solid).—£5 12s. 6d. to £5 17s. 6d. per ton d/d, carriage paid.
Copper Sulphate.—£25 to £25 10s. per ton.
Methylated Spirit 64 O.P.—Industrial, 2s. 7d. to 2s. 11d. per gall. Mineralised, 3s. 8d. to 4s. per gall., in each case according to quantity.
Nickel Sulphate.—£38 per ton d/d. Normal business.
Nickel Ammonia Sulphate.—£38 per ton d/d. Normal business.
Potash Caustic.—£30 to £33 per ton.
Potassium Bichromate.—5d. per lb.
Potassium Chlorate.—2¾d. to 3d. per lb.
Salammoniac.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton. Carr. pd.
Salt Cake.—£3 15s. to £4 per ton d/d. In bulk.
Soda Caustic, Solid.—Spot lots delivered, £15 12s. 6d. to £18 per ton, according to strength; 20s. less for contracts.
Soda Crystals.—£5 to £5 5s. per ton ex railway depots or ports.
Sodium Acetate 97/98%.—£24 per ton.
Sodium Bicarbonate.—£10 10s. per ton, carr. paid.
Sodium Bichromate.—4d. per lb.
Sodium Bisulphite Powder 60/62%.—£16 to £17 per ton, according to quantity, f.o.b., 1-cwt. iron drums included.
Sodium Chlorate.—2¾d. per lb.
Sodium Nitrate refined 96%.—£13 5s. to £13 10s. per ton, ex Liverpool. Nominal.
Sodium Nitrite 100% basis.—£27 per ton d/d.
Sodium Sulphate (Glauber Salts).—£3 12s. 6d. per ton.
Sodium Sulphide conc. solid. 60/65.—About £15 per ton d/d. Contract £14 15s. Carr. pd.
Sodium Sulphide Crystals.—£9 5s. per ton d/d. Contract £9 2s. 6d. Carr. pd.
Sodium Sulphide, Pea Crystals.—£15 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

Acid Carbolic Crystals.—5d. per lb. Quiet demand. Crude 60's, 1s. 5d. to 1s. 6d. per gall. Demand negligible.
Acid Cresylic 97/99.—1s. 8d. to 2s. per gall. Fair business. Pale, 95%, 1s. 6d. to 1s. 10d. per gall. Dark, 1s. 6d. to 1s. 9d. per gall. Little demand.
Anthracene Paste 40%.—3d. to 4d. per unit per cwt.—Nominal price. No business.
Anthracene Oil, Strained.—7d. to 8d. per gall. Unstrained, 6d. to 7d. per gall.
Benzol.—Crude 65's.—9d. to 11½d. per gall., ex works in tank wagons. Standard Motor, 1s. 4½d. to 1s. 6d. per gall., ex works in tank wagons. Pure, 1s. 9½d. to 1s. 11d. per gall., ex works in tank wagons.
Toluol.—90%, 1s. 7d. to 1s. 8d. per gall. More inquiry. Pure, 1s. 10d. to 2s. per gall. Steady demand.
Xylol Commercial.—2s. 3d. per gall. Pure, 3s. 3d. per gall.
Creosote.—Cresylic, 20/24%, 8d. to 8½d. per gall. Little demand. Middle Oil, Heavy, Standard specification, 5½d. to 6½d. per gall., according to quality and district. Market steady.
Naphtha.—Crude, 8d. to 9d. per gall. Solvent 90/160, 1s. 4d. to 1s. 6d. per gall. Demand good. Solvent 90/190, 11½d. to 1s. 1d. per gall. Steady business.
Naphthalene Crude.—Cheaper in Yorkshire than in Lancashire. Drained Creosote Salts, £3 to £5 per ton. Demand falling off. Whizzed or hot pressed. £6 to £9 per ton.
Naphthalene.—Crystals and Flaked, £12 to £15 per ton, according to districts. Very quiet.
Pitch.—Medium soft, 35s. to 40s. per ton, according to district. No export business until next season.
Pyridine.—90/160, 19s. to 19s. 6d. per gall. Market more active. Fair demand. Heavy, 11s. 6d. to 12s. per gall. More inquiry.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated.

Acetic Anhydride 95%.—1s. 7d. per lb.
Acid H.—3s. 9d. per lb. 100% basis d/d.
Acid Naphthionic.—2s. 2d. per lb. 100% basis d/d.
Acid Neville and Winther.—5s. 8d. per lb. 100% basis d/d.
Acid Salicylic, technical.—11d. to 11½d. per lb. Steady demand.
Acid Sulphanilic.—9d. per lb. 100% basis d/d.
Aluminium Chloride, anhydrous.—10d. per lb. d/d.
Aniline Oil.—7½d. per lb. naked at works.
Aniline Salts.—8d. per lb. naked at works.
Antimony Pentachloride.—1s. per lb. d/d.
Benzidine Base.—3s. 8d. per lb. 100% basis d/d.
Benzyl Chloride 95%.—1s. 1d. per lb.
p-Chlorphenol.—4s. 3d. per lb. d/d.
p-Chloraniline.—3s. per lb. 100% basis.
o-Cresol 29/31° C.—3d. per lb. Demand quiet.
m-Cresol 98/100%.—2s. 1d. to 2s. 3d. per lb. Demand moderate.
p-Cresol 32/34° C.—2s. 1d. to 2s. 3d. per lb. Demand moderate.
Dichloraniline.—2s. 3d. per lb.
Dichloraniline S. Acid.—2s. 3d. per lb. 100% basis.
p-Dichlorbenzol.—£85 per ton.
Diethylaniline.—4s. 3d. per lb. d/d., packages extra, returnable.
Dimethylaniline.—2s. 2d. per lb. d/d. Drums extra.
Dinitrobenzene.—9d. per lb. naked at works.
Dinitrochlorbenzol.—£84 10s. per ton d/d.
Dinitrotoluene.—48/50° C. 8d. to 9d. per lb. naked at works. 66/68° C. 1s. per lb. naked at works.
Diphenylaniline.—2s. 10d. per lb. d/d.
G. Salt.—2s. 2d. per lb. 100% basis d/d.
Monochlorbenzol.—£63 per ton.
a-Naphthol.—2s. 3d. per lb. d/d.
B-Naphthol.—1s. per lb. d/d.
a-Naphthylamine.—1s. 3½d. per lb. d/d.
B-Naphthylamine.—3s. 9d. per lb. d/d.
m-Nitraniline.—4s. 2d. per lb. d/d.
p-Nitraniline.—2s. 2d. per lb. d/d.
Nitrobenzene.—5½d. per lb. naked at works.
o-Nitrochlorbenzol.—2s. 3d. per lb. 100% basis d/d.
Nitronapthalene.—10d. per lb. d/d.
p-Nitrophenol.—1s. 9d. per lb. 100% basis d/d.
p-Nitro-*o*-amido-phenol.—4s. 6d. per lb. 100% basis.
m-Phenylene Diamine.—4s. per lb. d/d.
p-Phenylene Diamine.—9s. 9d. per lb. 100% basis d/d.
R. Salt.—2s. 4d. per lb. 100% basis d/d.
Sodium Naphthionate.—2s. 2d. per lb. 100% basis d/d.
o-Toluidine.—10d. per lb.
p-Toluidine.—2s. 3d. per lb. naked at works.
m-Toluylene Diamine.—4s. per lb. d/d.

Wood Distillation Products

Acetate of Lime.—Brown £11. Quiet market. Grey, £15 10s. per ton. Firmer. Liquor, 9d. per gall. 32° Tw.
Acetone.—£78 per ton.
Charcoal.—£7 5s. to £9 per ton, according to grade and locality Fair demand.
Iron Liquor.—1s. 7d. per gall 32° Tw. 1s. 2d. per gall. 24° Tw.
Red Liquor.—10d. to 1s. per gall. 14/15° Tw.
Wood Creosote.—2s. 9d. per gall. Unrefined.
Wood Naphtha, Miscible.—4s. 9d. per gall. Only moderate market. 60% O.P. Solvent, 5s. per gall. 40% O.P.
Wood Tar.—£4 to £5 per ton. Demand slack and stocks being held.
Brown Sugar of Lead.—£43 10s. per ton.

Rubber Chemicals

Antimony Sulphide.—Golden, 7½d. to 1s. 5d. per lb., according to quality. Crimson, 1s. 5d. to 1s. 7½d. per lb., according to quality.
Arsenic Sulphide, Yellow.—2s. per lb.
Cadmium Sulphide.—4s. 4d. per lb., according to quantity.
Carbon Bisulphide.—£32 to £35 per ton, according to quantity.
Carbon Black.—6d. to 6½d. per lb., ex wharf.
Carbon Tetrachloride.—£62 to £67 per ton, according to quantity drums extra.
Chromium Oxide, Green.—1s. 4d. per lb.
Indiarubber Substitutes, White and Dark.—5¾d. to 7½d. per lb.
Lamp Black.—£48 per ton, barrels free.
Lead Hyposulphite.—9d. per lb.
Lithopone, 30%.—£22 10s. per ton.
Mineral Rubber "Rubpron."—£16 to £18 per ton f.o.r. London.
Sulphur.—£10 to £12 per ton, according to quality.
Sulphur Chloride.—4d. per lb., carboys extra.
Sulphur Precip. B.P.—£56 to £65 per ton.
Thiocarbanilide.—2s. 6d. per lb.

Vermilion, Pale or Deep.—5s. 6d. per lb. Dearer.
Zinc Sulphide.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

Acid, Acetic 80% B.P.—£41 per ton ex wharf London in glass containers.
Acid, Acetyl Salicylic.—2s. 9d. to 2s. 10d. per lb., according to quantity.
Acid, Benzoic B.P.—2s. to 2s. 3d. per lb., according to quantity.
Acid, Boric B.P.—Prices reduced by £5 per ton. Crystal £46 per ton, Powder £50 per ton. Carriage paid any station in Great Britain.
Acid, Camphoric.—19s. to 21s. per lb.
Acid, Citric.—1s. 5d. per lb., less 5% for ton lots. Slightly upward tendency.
Acid, Gallic.—2s. 9d. per lb. for pure crystal, in cwt. lots. Easier.
Acid, Pyrogallic, Crystals.—6s. per lb. for 1 cwt. lots. 7s. 6d. per lb. for 7-lb. lots, according to quantity. Steady market.
Acid, Salicylic.—1s. 4½d. to 1s. 6d. per lb., according to quantity. Market rather easier.
Acid, Tannic B.P.—2s. 9d. per lb. Quiet steady demand.
Acid, Tartaric.—1s. 1d. per lb., less 5%. Very firm. Demand good.
Amidol.—9s. per lb., d/d.
Acetanilide.—1s. 9d. per lb. Price lower owing to competition
Amidopyrin.—14s. per lb.
Ammonium Benzoate.—3s. to 3s. 6d. per lb., according to quantity.
Ammonium Carbonate B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.
Atropine Sulphate.—12s. 6d. per oz. for English make.
Barbitone.—11s. 9d. per lb. Price lower owing to competition.
Benzonaphthol.—4s. 3d. per lb. spot. Weaker. Demand quiet.
Bismuth Salts.—Prices reduced by about 1s. 3d. to 2s. 3d. per lb. on account of the fall in the price of the metal.
Bismuth Carbonate.—10s. 6d. to 12s. 6d. per lb.
Bismuth Citrage.—10s. 3d. to 12s. 3d. per lb.
Bismuth Salicylate.—9s. to 11s. per lb.
Bismuth Subnitrate.—8s. 8d. to 10s. 8d. per lb. according to quantity.
} The price of Bismuth Metal has been raised from 5s. to 7s. 6d. per lb. Bismuth Salts have been advanced accordingly.
Borax B.P.—Crystal £29, Powder £30 per ton. Carriage paid any station in Great Britain.
Bromides.—Potassium, 2s. 1d. to 2s. 3d. per lb.; sodium, 2s. 2d. to 2s. 4d. per lb.; ammonium, 2s. 6d. to 2s. 8d. per lb., all spot. Market very firm. Prices again advanced.
Calcium Lactate.—1s. 6½d. to 1s. 8d., according to quantity. Fair demand and steady market.
Chloral Hydrate.—3s. 8d. per lb., duty paid.
Chloroform.—2s. 6d. per lb. for cwt. lots.
Creosote Carbonate.—6s. 9d. per lb. Little demand.
Formaldehyde.—£41 per ton, in barrels ex wharf.
Glycerophosphates.—Fair business passing. Calcium, soluble and citrate free, 7s. per lb.; iron, 8s. 9d. per lb.; magnesium, 9s. per lb.; potassium, 50%, 3s. 6d. per lb.; sodium, 60%, 2s. 6d. per lb.
Guaiacol Carbonate.—7s. 6d. per lb.
Hexamine.—2s. 7d. per lb. for cwt. lots.
Homatropine Hydrobromide.—25s. to 30s. per oz.
Hydrastine Hydrochloride.—English make offered at 120s. per oz.
Hydrogen Peroxide (12 vols.).—1s. 8d. per gallon f.o.r. makers' works, naked.
Hydroquinone.—4s. 3d. per lb. Nominal.
Hypophosphites.—Calcium, 3s. 6d. per lb., for 28 lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
Iron Ammonium Citrate B.P.—1s. 11d. to 2s. 3d. per lb.
Magnesium Carbonate.—Light Commercial, £36 per ton net. Light pure, £46 per ton.
Magnesium Oxide.—Light Commercial, £72 10s. per ton, less 2½%, price reduced; Heavy Commercial, £25 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.
Menthol.—A.B.R. recrystallised B.P., 44s. per lb.; April delivery. Synthetic 26s. to 31s. per lb., according to quality. English make. Increasing demand.
Mercurials.—Market flat. Mercury slightly firmer. Red oxide, 5s. 2d. to 5s. 4d. per lb.; Corrosive sublimate, 3s. 7d. to 3s. 9d. per lb.; white precipitate, 4s. 6d. to 4s. 8d. per lb.; Calomel, 3s. 10d. to 4s. per lb.
Methyl Salicylate.—1s. 8d. per lb., for ton lots. Market steadier.
Methyl Sulphonal.—18s. 6d. per lb. Cheaper.
Metol.—11s. per lb. British make.
Morphone and Salts.—Reduced by 1s. to 1s. 3d. per oz.
Paraformaldehyde.—2s. 2d. for B.P. quality. Keen competition has brought prices down.
Paraldehyde.—1s. 2d. to 1s. 4½d. per lb., in free bottles and cases.
Phenacetin.—4s. 8d. per lb. in cwt. lots. Unsettled. Supplies exceed demand.
Phenazone.—6s. 3d. to 6s. 6d. per lb. Spot price lower than forward.
Phenolphthalein.—4s. 6d. to 5s. per lb. for cwt. lots.
Potassium Bitartrate 99/100% (Cream of Tartar).—83s. per cwt., less 2½% for ton lots.
Potassium Citrate.—1s. 10d. to 2s. 2d. per lb.
Potassium Ferricyanide.—1s. 9d. per lb. Quiet.
Potassium Iodide.—16s. 8d. to 17s. 5d. per lb., according to quantity. Steady market.
Potassium Metabisulphite.—7½d. per lb., 1-cwt. kegs included, f.o.r. London.
Potassium Permanganate.—B.P. crystals, 7½d. per lb., spot; commercial, 8d. to 8½d. per lb., carriage paid. Slight reaction after recent advance.
Quinine Sulphate.—2s. 3d. to 2s. 4d. per oz., in 100 oz. tins. Steady market.
Resorcin.—4s. 9d. per lb. In fair quantities. Supplies exceed demand.
Saccharin.—63s. per lb. in 50 lb. lots.
Salol.—3s. 6d. per lb., for cwt. lots. Slightly dearer.
Silver Proteinate.—12s. per lb. for satisfactory product light in colour.
Sodium Benzoate, B.P.—1s. 10d. to 2s. 2d. per lb. From natural benzoic acid. Supplies of good quality available.
Sodium Citrate, B.P.C., 1923.—1s. 11d. to 2s. 2d. per lb., according to quantity.
Sodium Hyposulphite, Photographic.—£14 to £15 per ton, according to quantity, d/d consignee's station in 1-cwt. kegs.
Sodium Metabisulphite Crystals.—37s. 6d. to 60s. per cwt., net cash, according to quantity.
Sodium Nitroprusside.—16s. per lb.
Sodium Potassium Tartrate (Rochelle Salt).—75s. per cwt., for ton lots and upwards.
Sodium Salicylate.—Powder, 2s. 2d. to 2s. 3d. per lb. Crystal, 2s. 3d. to 2s. 5d. per lb. Flake, 2s. 6d. per lb. Strong demand, market firmer.
Sodium Sulphide, pure recrystallised.—10d. to 1s. 2d. per lb.
Sodium Sulphite, anhydrous, £27 10s. per ton, minimum 5 ton lots, according to quantity; 1-cwt. kegs included.
Sulphonal.—13s. per lb. accepted for quantity.
Thymol.—16s. per lb.

Perfumery Chemicals

Acetophenone.—9s. 6d. per lb. Cheaper.
Aubepine.—11s. 3d. per lb.
Amyl Acetate.—3s. per lb.
Amyl Butyrate.—6s. 6d. per lb.
Amyl Salicylate.—3s. 1½d. per lb.
Anethol (M.P. 21/22° C.).—4s. 6d. per lb.
Benzyl Acetate from Chlorine-free Benzyl Alcohol.—2s. 7½d. per lb.
Benzyl Alcohol free from Chlorine.—2s. 7½d. per lb.
Benzaldehyde free from Chlorine.—3s. per lb.
Benzyl Benzoate.—3s. per lb.
Cinnamic Aldehyde Natural.—14s. 9d. per lb.
Coumarin.—14s. 9d. per lb.
Citronellol.—22s. per lb.
Citral.—9s. per lb. Cheaper.
Ethyl Cinnamate.—10s. per lb.
Ethyl Phthalate.—3s. per lb.
Eugenol.—10s. per lb. Cheaper.
Geraniol (Palmarosa).—28s. 6d. per lb.
Geraniol.—9s. 6d. to 18s. 6d. per lb.
Heliotropine.—6s. 3d. per lb.
Iso Eugenol.—15s. per lb.
Linalol ex Bois de Rose.—24s. 6d. per lb.
Linalyl Acetate.—24s. 6d. per lb.
Methyl Anthranilate.—10s. per lb.
Methyl Benzoate.—5s. per lb.
Musk Ambrette.—50s. per lb.
Musk Ketone.—37s. 6d. per lb. Cheaper.
Musk Xylol.—10s. 3d. per lb. Cheaper.
Nerolin.—4s. 6d. per lb.
Phenyl Ethyl Acetate.—15s. per lb.
Phenyl Ethyl Alcohol.—14s. per lb.
Rhodinol.—38s. 6d. per lb. Cheaper.
Safrol.—1s. 8d. per lb.
Terpineol.—1s. 10d. per lb.
Vanillin.—25s. to 25s. 6d. per lb.

Essential Oils

Almond Oil, Foreign S.P.A.—13s. 9d. per lb.
Anise Oil.—2s. 7½d. per lb. Cheaper.
Bergamot Oil.—16s. per lb.
Bourbon Geranium Oil.—21s. per lb. Cheaper.
Camphor Oil.—60s. per cwt. Cheaper.
Cananga Oil, Java.—10s. 9d. per lb. Cheaper.
Cinnamon Oil, Leaf.—6d. per oz.
Cassia Oil, 80/85%.—9s. 3d. per lb. Cheaper.
Citronella Oil.—Java, 85/90%, 4s. 9d. per lb. Ceylon, 3s. to 3s. 2d. per lb., according to quality. Firmer with higher prices for forward delivery.
Clove Oil.—7s. 6d. per lb.
Eucalyptus Oil, 70/75%.—2s. per lb.
Lavender Oil.—French 38/40% Esters, 35s. per lb.
Lemon Oil.—3s. 3d. per lb. Cheaper.
Lemongrass Oil.—5s. 9d. per lb.
Orange Oil, Sweet.—10s. 9d. per lb. Cheaper.
Palma Rose Oil.—15s. 3d. per lb.
Otto of Rose Oil.—Bulgarian, 42s. 6d. per oz. Anatolian, 28s. per oz.
Palma Rosa Oil.—16s. 9d. per lb.
Peppermint Oil.—Wayne County, 65s. per lb. Japanese, 16s. 3d. per lb. Cheaper.
Petitgrain Oil.—9s. 9d. per lb.
Sandal Wood Oil.—Mysore, 26s. 7d. per lb. Australian, 18s. 6d. per lb.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

Glasgow, May 22, 1925.

THERE has been a rather better tone in the Heavy Chemical Market during the past week, inquiries being more numerous than for some little time. Prices on the whole remain fairly steady with exception of some continental products which vary in both directions.

Industrial Chemicals

ACID ACETIC.—In moderate demand, and prices unchanged. 98/100% glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £40 to £42 per ton; 80% technical, £39 to £41 per ton; packed in casks, c.i.f., U.K. ports.

ACID BORIC.—Crystal, granulated or small flaked, £40 per ton; powdered, £42 per ton; packed in bags, carriage paid U.K. stations, minimum ton lots.

ACID CARBOLIC, ICE CRYSTALS.—Still quoted 4¾d. per lb. delivered, but would probably be obtained for less.

ACID CITRIC, B.P. CRYSTALS.—Unchanged at about 1s. 4½d. per lb., less 5% ex store, spot delivery. In usual steady demand.

ACID FORMIC, 85%.—Spot material quoted £49 10s. per ton, ex store. Offered from the continent at about £48 5s. per ton, ex wharf.

ACID HYDROCHLORIC.—In little demand. Price 6s. 6d. per carboy, ex works.

ACID NITRIC, 80°.—Usual steady demand, quoted £23 15s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—Spot lots unchanged at about 4d. per lb., ex wharf. Offered for prompt shipment from the continent at about 3⅝d. per lb., c.i.f. U.K. ports, duty free.

ACID SULPHURIC.—144°, £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—Usual steady demand. Price unchanged at about 1s. per lb., less 5% ex store. Offered for early shipment from the continent at 11¾d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Quoted £6 15s. per ton, ex store, spot delivery. Offered for prompt shipment from the continent at about £6 5s. per ton, c.i.f., U.K. ports.

ALUM, LUMP POTASH.—Spot lots now quoted £9 2s. 6d. per ton, ex store. Offered from the continent at about £8 per ton, c.i.f. U.K. ports.

AMMONIA ANHYDROUS.—Unchanged at 1s. 4½d. per lb., ex station, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered U.K. ports.

AMMONIA LIQUID 880°.—In steady demand. Unchanged at 2½d. to 3d. per lb. delivered, according to quantities.

AMMONIA MURIATE.—Grey galvanizer's crystals of English manufacture quoted £20 10s. per ton, ex station. Offered from the continent at about £25 per ton, c.i.f. U.K. ports. Fine white crystals quoted £20 per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Spot material now quoted £26 per ton, ex store. Offered for early delivery at about £25 per ton, ex wharf.

BARIUM CHLORIDE, 98/100% CRYSTALS.—English material unchanged at about £10 5s. per ton, ex store. Foreign on offer at £8 10s. per ton, c.i.f. U.K. ports.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Spot lots quoted £10 10s. per ton, ex station. Contracts 20s. per ton less.

BORAX.—Granulated, £24 10s. per ton; crystals, £25 per ton; powdered, £26 per ton, carriage paid U.K. stations, minimum ton lots.

CALCIUM CHLORIDE.—English price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, carriage paid U.K. stations. Continental on offer at about £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 5s. per ton, ex works, packed in casks free.

COPPER SULPHATE.—English material unchanged at about £24 10s. per ton, f.o.b. U.K. ports. Continental quoted about £22 10s. to £23 per ton, c.i.f. U.K. ports.

FORMALDEHYDE, 40%.—On offer from the continent at about £39 per ton, c.i.f. U.K. ports. Spot material quoted £40 per ton, ex store.

GLAUBER SALTS.—White crystals of English manufacture, unchanged at £4 per ton, ex store or station. Continental on offer at about £3 5s. per ton, c.i.f. U.K. ports.

LEAD ACETATE.—White crystals on offer for spot delivery at £45 per ton, ex store. Offered from the continent at about £43 15s. per ton, c.i.f. U.K. ports.

LEAD, NITRATE.—Now quoted £42 per ton, ex store.

LEAD, RED.—Rather higher at £42 10s. per ton, ex store, spot delivery for imported material. Offered from the continent at about £40 10s. per ton, c.i.f. U.K. ports.

LEAD, WHITE.—Unchanged at about £43 10s. per ton, ex store.

MAGNESITE, GROUND CALCINED.—Unchanged at about £8 per ton, ex station, prompt delivery.

MAGNESIUM CHLORIDE.—Unchanged at about £2 17s. 6d. per ton, c.i.f. U.K. ports. Prompt shipment.

POTASH, CAUSTIC, 88/92%.—Unchanged at about £29 per ton, ex wharf, prompt shipment from the continent. Spot material available at about £30 10s. per ton, ex store.

POTASSIUM BICHROMATE.—Price for home consumption, 5d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Quoted £25 10s. per ton, ex store, spot delivery. Offered for prompt shipment from the continent at about £25 per ton, c.i.f. U.K. ports; 90/94% quality quoted £23 15s. per ton, c.i.f. U.K. ports, prompt shipment.

POTASSIUM CHLORATE.—Spot material unchanged at about 4d. per lb., ex store. Offered for early delivery at 3¾d. per lb., c.i.f. U.K. ports.

POTASSIUM NITRATE, SALTPETRE.—Refined granulated, 99% quoted at about £28 per ton, ex store. Quoted £24 10s. per ton, c.i.f. U.K. ports for prompt shipment from the continent.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—On offer at 7½d. per lb., ex store. Offered for prompt shipment from the continent at about 7¼d. per lb., ex wharf.

POTASSIUM PRUSSIATE, YELLOW.—Spot material still quoted 7¼d. per lb., ex store. Offered for prompt shipment from the continent at about 7d. per lb., ex wharf.

SODA, CAUSTIC.—76/77%, £18 per ton; 70/72%, £16 12s. 6d. per ton; broken 60%, £17 2s. 6d. per ton; powdered 98/99%, £21 7s. 6d. per ton. All carriage paid U.K. stations, spot delivery. Contracts 20s. per ton less.

SODIUM ACETATE.—On offer from the continent at about £19 per ton, c.i.f. U.K. ports. Spot material on offer at about £21 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM CARBONATE.—Soda crystals, £5 to £5 5s. per ton, ex quay or station; powdered or pea quality, £1 7s. 6d. per ton more; alkali 58%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—English material quoted £9 15s. per ton, ex station. Continental about £8 5s. per ton, c.i.f. U.K. ports. Pea crystals of English manufacture at £14 per ton, ex station.

SODIUM NITRATE.—Ordinary quality quoted £13 7s. 6d. per ton, ex store. 96/98% refined quality 7s. 6d. per ton extra.

SODIUM NITRITE 100%.—Offered from the continent at about £22 per ton, c.i.f. U.K. ports. Spot material quoted £24 10s. per ton, ex store.

SODIUM PRUSSIATE, YELLOW.—Quoted 4d. per lb., ex store, but could probably be obtained at a fraction less.

SODIUM SULPHATE, SALTCAKE.—Price for home consumption, £3 10s. per ton, f.o.r. works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE.—English manufacturers quote 60/62% solid, £15 per ton; broken, £1 per ton more; flake, £2 per ton more; crystal, 31/34 %, £9 5s. per ton, carriage paid U.K. stations, minimum 4 ton lots, with slight reduction for contracts over a period; 60/62% solid offered from the continent at about £10 15s. per ton, c.i.f. U.K. ports; broken, £1 per ton more; 30/32% crystals, £8 5s. per ton, c.i.f. U.K. ports.

SULPHUR.—Flowers, £9 10s. per ton; roll, £8 10s. per ton; rock, £8 7s. 6d. per ton; roll, £8 5s. per ton. Prices nominal, ex store.

ZINC CHLORIDE.—97/98% of continental manufacture quoted £23 per ton, c.i.f. U.K. ports. English material for export on offer at about £25 to £26 per ton, f.o.b. U.K. ports.

ZINC SULPHATE.—In moderate demand and price unchanged at about £12 10s. per ton, ex store.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Coal Tar Intermediates and Wood Distillation Products

NAPHTHIONATE OF SODA.—Some home inquiries, 1s. 11d. to 2s. per lb.

DIMETHYLANILINE.—Some home inquiries, 2s. 2d. per lb.

R. SALT.—Some home inquiries, 2s. 4d. per lb.

PARANITRANILINE.—Some export inquiries, 2s. 2d. to 2s. 3d. per lb.

ALPHANAPHTHYLAMINE.—Some export inquiries, 1s. 3d. to 1s. 4d. per lb.

Manchester Chemical Market

[From Our Own Correspondent.]

Manchester, May 22, 1925.

Home trade buyers as yet show little disposition to depart from the policy they have perforce had to adopt for some time—namely, that of covering only for immediate or early needs. Forward transactions are comparatively few in number, and what there are are chiefly for small lots. This position, coupled with the fact that overseas business is only of moderate extent, means that the volume of trade put through on the Manchester market during the past week has been restricted, although not more so, perhaps, than has been the case for some months. In the meantime values generally are fairly well maintained, with here and there a little weakness reflected in the current prices.

Heavy Chemicals

Although sales of sulphide of sodium are still slow quotations continue on the basis of £13 15s. per ton for 60 to 65 per cent. concentrated solid and £9 10s. for crystals. Saltcake is not attracting much attention from buyers; values range between £3 15s. and £4 per ton. Glauber salts are a dull section of the market and quotations are easy at round £3 10s. per ton. Caustic soda continues in rather good demand for both branches of trade and prices are firm at from £15 12s. 6d. per ton for 60 per cent. strength to £18 for 76 to 77 per cent. Prussiate of soda is rather quiet and not too firm at the moment at 3¾d. per lb. Bichromate of soda is selling in fair quantities at about 4d. per lb. Alkali is still quoted at £6 15s. per ton and a quietly steady demand is being met with. Bleaching powder is maintained at £9 10s. per ton but business is not too active. Chlorate of soda meets with a fair inquiry, and values are firm at about 3d. per lb. Hyposulphite of soda is steady and in moderate request at £13 10s. per ton for photographic crystals and £9 5s. for commercial quality. Soda crystals are still on offer at £5 5s. per ton, and a fair amount of business is being put through. Acetate of soda is in small request, but prices are not much changed from last week at round £19 per ton. Phosphate of soda is in limited request at £12 10s. to £12 15s. per ton. Bicarbonate of soda is unchanged at £10 10s. per ton.

Caustic potash and carbonate of potash are meeting with a quiet demand, but little change from recent price levels can be reported this week. Around £30 per ton for caustic is currently quoted and £24 10s. to £25 per ton for carbonate. Permanganate of potash is still selling rather slowly and values are easier; commercial quality is on offer at 6d. per lb. and B.P. at about 7½d. Yellow prussiate continues in limited request at about 7d. per lb. A fair inquiry for chlorate of potash has been reported, and prices are firm at 3¼d. to 3½d. per lb. Bichromate of potash is steady and in moderate demand at 5d. per lb.

Arsenic keeps dull and weak and no sign of improvement can be reported; white powdered, Cornish makes, is now on offer in Manchester at about £27 per ton. The demand for sulphate of copper is on a small scale at £24 5s. to £24 10s. per ton. Commercial Epsom salts are on the quiet side, but values are steady at round £4 5s. per ton; magnesium sulphate, pharmaceutical quality, is unchanged at £6 per ton. Nitrate of lead is fairly steady but in limited request at £41 per ton. White acetate of lead is about unchanged from last week at £45 per ton, with brown quality quoted at £40 to £41. Acetate of lime is quiet but steady at £14 10s. to £15 per ton for grey and £9 10s. for brown.

Acids and Coal Tar Products

Acetic acid has been rather inactive during the past week though values have been pretty well maintained at round £39 per ton for 80 per cent. commercial and £67 for glacial. Oxalic acid is quiet and easy at 3¾d. per lb. Tartaric acid meets with a fair demand and prices are firm at 1s. to 1s. 0½d. per lb. Citric acid is also well held at 1s. 4½d. per lb.

The tar products section of the market has shown very little movement. Pitch keeps exceedingly quiet with prices nominal at round £40 per ton. Creosote oil is on offer at 6d. to 6¼d. per gallon. Naphthalenes are in small demand at about £14 10s. per ton for refined and from £4 5s. for crude. Solvent naphtha is about unchanged at 1s. 5d. per gallon. Carbolic acid is very dull and weak at 4¾d. per lb. for crystals and 1s. 6d. per gallon for crude material.

Norway's Fertiliser Trade

The consumption of fertilisers in Norway is not extensive, and the production allows a large surplus for exportation. In 1923 the total exports of fertilisers and fertiliser materials amounted to 156,677 tons, while the imports aggregated 60,334 tons. Of the total exports 94 per cent. was comprised of artificial fertilisers, chiefly calcium nitrate (Norway saltpeter), which found an extensive sale throughout Europe —90 per cent. of the total shipments of 147,233 tons. The United States received 5,564 tons. Norway is likewise an exporter of natural fertilisers, 9,020 tons being shipped to foreign countries in 1923. As might be expected from the size of the fishing industry, fish guano, a by-product, is the most important of this group. Its exportation amounted to 7,266 tons in 1923, Germany taking one-half and England one-third.

Norway has not sufficient potash and phosphates, and accordingly imports these articles. In 1923 24,235 tons of superphosphates, 18,675 tons of Thomas phosphate, and 16,898 tons of kainit and other potash fertilisers were purchased from foreign countries, chiefly Germany, the Netherlands, and Belgium.

Conversion of Coal into Oils

Every manufacturer associated with the heavy chemical industry, and every chemist and gas engineer will learn with interest that Professor Fischer's important and original researches on "The Conversion of Coal into Oils" are being issued in an English edition specially prepared with notes and appendices for the use of British chemists, chemical manufacturers, and fuel technologists, by Dr. R. Lessing. This important work, which is just published by Ernest Benn, Ltd., gives the first connected account of the researches and experiments carried out at the Kaiser Wilhelm Institute for Coal Research, at Mülheim-Ruhr, on the extraction of coal with solvents, the production of primary tar and its working-up, the liquefaction of coal by hydrogenation, and the synthesis by the aid of catalysts of fuel oils from water gas and from carbides, together with the results of other workers in the same field. Dr. Lessing's notes deal with the latest developments in low-temperature carbonisation, the treatment of primary tar, and the hydrogenation of coal. It is a fully illustrated volume of 290 pages and is published at 36s. net.

Glass Technology Symposium

For its May meeting the Society of Glass Technology has arranged a symposium of papers on the constitution of glass. Two sessions will be held, the first at 7.30 p.m. on Monday, May 25, at the Royal Society of Arts, John Street, Adelphi, London, and the second on Tuesday, May 26, at 2.30 p.m., in the Chemistry Lecture Theatre, University College, Gower Street, London. Papers have been promised by Professor W. E. S. Turner, Professor G. Tammann (Göttingen), Dr. F. Eckert (Essen), Dr. A. Q. Tool and E. E. Hill (Bureau of Standards, U.S.A.), Professor Le H. Chatelier (Paris), Sir William Bragg, Mr. V. H. Stott (National Physical Laboratory, Teddington), Dr. G. W. Morey and Dr. N. L. Bowen (Geophysical Laboratory, Washington), Dr. A. A. Lebedeff (Optical Institute, Leningrad), Dr. G. W. Morey and Dr. R. W. G. Wyckoff (Geophysical Laboratory, Washington). Members of the Faraday Society, the Optical Society, the Physical Society, and others interested are invited.

Electrical Undertakings

Last week saw the publication of the thirty-eighth edition of "*The Electrician*" annual tables of electricity supply undertakings, a volume that has come to be indispensable to all connected with electrical and allied industries. The tables are remarkably comprehensive, and this volume gives considerable information regarding the undertakings in Roumania and Jugo-Slavia, and next year's volume is expected to include similar data for Russia. It is this thoroughness and world-wide scope that make the volume a standard work of reference. (*"The Electrician" Annual Tables of Electricity Undertakings*, 1925. (Benn Brothers, Ltd.) 10s. 9d., post free).

Company News

CASSEL CYANIDE CO.—An interim dividend of 3d. per share is announced.

THE ANNUAL MEETING will be held at the Institute of Chartered Accountants, Moorgate Place, London, E.C., on May 25.

NEUCHATEL ASPHALTE CO.—A dividend for 1924 of 1s. 3d. per share, less tax, is recommended, comparing with 1s. per share for 1923.

LAGUNAS NITRATE CO.—The report for the twelve months ended December 31 last, states that the gross profit amounted to £28,700. A dividend of 2s. per share, free of income tax, is recommended.

TATE AND LYLE, LTD.—The directors have declared an interim dividend of 4 per cent., less tax, at 4s. 3d. in the £, on the ordinary shares, payable on June 15. This compares with 2½ per cent., free of tax, last year.

EASTMAN KODAK OF NEW JERSEY.—The directors have declared the following dividends, payable on July 1 to holders of record on May 29; regular dividend of 1½ per cent. on the preferred stock; regular dividend of $1·25 per share on the common stock; and an extra dividend of $0·75 per share on the common stock.

NOBEL INDUSTRIES, LTD.—The directors announce that particulars of the results of the constituent and associated companies for 1924 enable them to declare a further dividend on the ordinary shares of 6 per cent., less tax, making, with the interim, 9 per cent. for the year. This compares with 8 per cent. paid for 1923, 7 per cent. for 1922, 5 per cent. for 1921, and nothing for 1920.

NITRATE PRODUCERS' STEAMSHIP CO.—The accounts show a profit for the year ended April 30 of £55,445, to which must be added the balance brought forward, making a total of £71,885. It is proposed to pay a dividend at the rate of 7½ per cent. per annum for the final six months, together with a bonus of 2½ per cent., both free of income tax, and to place £15,000 to reserve for depreciation, etc., leaving £15,833 to be carried forward.

W. J. BUSH AND CO., LTD.—The report for the year ended December 31 states that the accounts show a gross profit of £290,156. After providing for debenture interest, expenses, and directors' remuneration, and making allowances for depreciation, there is a net profit of £79,044. To this must be added £32,485 brought forward, less corporation profits tax (since paid), making £111,529. The directors recommend a final dividend of 7 per cent. on the ordinary shares, making 10 per cent. for the year, placing to general reserve £30,000, and carrying forward £50,279.

BRUNNER, MOND AND CO., LTD.—In their report for the year to March 31 last, the directors state that the profit and loss account shows a credit balance of £1,570,370, which, with £83,482 brought forward, makes £1,653,852. The directors propose to pay a dividend on the ordinary capital at 14 per cent. per annum, making, with the interim dividend, 10½ per cent. for the year, subject to deduction of income tax; to place to general reserve account £92,783, to suspense account £150,000, and to carry forward £89,790. It is proposed to post the dividend warrants on June 18. For the previous year profits were £1,552,574. The dividend was 10½ per cent.; £88,000 was placed to the general reserve and £150,000 to suspense account.

Ethylene as an Anæsthetic

AT a meeting of the Canadian Society of Anæsthetists at Toronto, it was announced by Dr. F. H. McMechan, the executive officer of the research bureau of the Association of Anæsthetists of the United States, that through a discovery made two weeks ago, the last obstacle in the way of the general use of ethylene as an anæsthetic had been removed. The discovery of the safe process is attributed to Dr. James H. Cotton, of Toronto, and the result has met with the approbation of the medical profession. The chief danger in its use in the operating room was said to come from its explosive nature. Lately, through the work of the research bureau, it has been proved that the presence of 35 per cent. of water vapour in the air acted as a complete preventive of these explosions.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

PAINTS, ETC.—Tenders are invited for supply of paints, etc., and varnishes, for the South Indian Railway Co., Ltd. Specifications and forms of tender will be available at the Company's Offices, 91, Petty France, Westminster, S.W.1. Tenders must be left with Mr. A. Muirhead, 91, Petty France, Westminster, S.W.1, not later than noon on May 29.

SAPONIFIED CRESOL.—The India Store Department invites tenders for 14,000 gals. of saponified cresol by June 6 to Director-General, India Store Department, Branch 45, Belvedere Road, Lambeth, S.E.1.

ESSENTIAL OILS, ETC.—An agent at Leipzig wishes to represent British manufacturers of essential oils and merchants and exporters of raw materials for chemical products. Correspondence in English. (Reference No. 617.)

CHEMICALS, ETC.—All firms wishing to be registered on the tender lists of the Egyptian State Railways should apply to the General Manager of the company, Cairo, quoting Reference No. 129.45/7. The divisions include paints and oils, lubricating oils, cement, pumps, varnishes.

Tariff Changes

AUSTRALIA.—The following goods are now included in the "raw materials" category: Barium carbonate (witherite), barium sulphate (barytes heavy spar) dry ground earth colours, linseed, turpentine, and shellac.

SOUTH-WEST AFRICA.—An export duty of ¼d. per gallon is imposed on whale oil.

PORTUGAL.—Asphalt slabs (*ladrilhos*) are now subject to a Customs duty of 1 escudo (gold) per metric ton under the "Minimum" Tariff and double that amount under the "Maximum" Tariff.

UNION OF SOUTH AFRICA.—The new tariff is published as a supplement to the *Board of Trade Journal* for May 14 but may be obtained separately from H.M. Stationery Office, Kingsway, London; price 6d.

British Optical Glass

MR. W. E. WATSON BAKER writes to *The Times*: "A short time ago there appeared in your columns a letter from Mr. William Taylor, of Taylor, Taylor and Hobson, emphasising the superiority of British optical glass. As the raw material in the optical industry is of the greatest importance, the superiority of lenses being dependent upon the types of glass available, it cannot be too often reiterated that Chance Bros., of Birmingham, to-day offer a magnificent selection of types of optical glass suitable for the requirements of all optical instrument manufacturers, and that their quality is not only unsurpassed, but unequalled. The reason for this letter is that I notice a recrudescence in advertisements with expressions such as 'This lens is constructed of the world-famed Jena Glass.' It is evident that this expression still has some appeal to the public, and it is unfortunate that a fact known to all scientific men should not be brought more prominently before the public."

Fertiliser Production in Latvia

THE Latvian Consulate-General in London reports, in connection with the production of artificial fertilisers in Latvia, that British financial interests have guaranteed credit facilities to the extent of about £50,000 for the reconstruction of one of the largest chemical works near Riga. This amount will be expended largely on the acquisition of the necessary machinery. It is expected that the production of sulphuric acid and superphosphate will commence towards the end of this year. The capacity of the works is about 16,130 tons of sulphuric acid and about 32,260 tons of superphosphate per annum. It is estimated that the locally produced article, although of similar quality to imported goods, will cost the consumer about 25 per cent. less than the latter.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry make no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

BRITISH AND COLONIAL CHEMICAL CO., LTD., 24, Westminster Palace Gardens, Victoria, S.W. (C.C., 23/5/25.) £20 19s. 4d. April 6th.

ROBERTS, A. W. AND CO., Ash Works, Albert Square, Forest Lane, Maryland Point, chemical manufacturers. (C.C., 23/5/25.) £23 13s. 6d. January 31st.

Mortgages and Charges

[***NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.***]

AGUAS BLANCAS NITRATE CO., LTD., London, E.C. (M., 23/5/25.) Registered May 4, £250,000 debentures and a premium of 2 per cent. on redemption and a further premium in certain events (secured by Trust Deed dated April 20, 1925); charged on *oficinas*, lands and nitrate grounds in Chile, also general charge. *Nil. June 6th, 1924.

BRITISH OXIDES, LTD., London, S.W. (M., 23/5/25.) Registered May 7, debenture to Bank; charged on Zinc Works, Landore, also general charge.

TAYLORS' DRUG CO., LTD., Leeds. (M., 23/5/25.) Registered May 4, £5,004 and any further advances mortgaged to Building Society; charged on 14, 16, 18 and 20, Silver Street and 1A, 3 and 5, King Street, Wakefield. *£111,744 0s. 11d. September 12, 1924.

Receivership

WHIPMAN (P.) AND CO., LTD. (R., 23/5/25.) S. G. Jones, of 20, Water Lane, E.C.4, was appointed Receiver and Manager on May 5, 1925, under powers contained in debenture dated March 14, 1924.

London Gazette

Company Winding Up

SHARDLOW CHEMICAL CO., LTD. (C.W.U., 23/5/25.) Meetings of creditors May 26, 11 a.m.; and contributories, May 26, 11.30 a.m., The Official Receiver's Offices, 4, Castle Place, Nottingham.

Company Winding Up Voluntarily

ARCHER'S MANUFACTURING CO., LTD. (C.W.U.V., 23/5/25.) W. M. Campbell, Windsor House, Victoria Street, Westminster, London, S.W.1, appointed liquidator, May 4.

New Companies Registered

ASSOCIATED BRITISH CARBIDE MERCHANTS, LTD.—To carry on the industrial, experimental, and commercial exploitation of all or any chemical or electro-chemical processes; manufacturers of and dealers in carbide of calcium, etc. Nominal capital £500 in £1 shares. Solicitor: C. K. T. Alton, 31, Great James Street, Bedford Row, London, W.C.1.

BONNARD CARBON MANUFACTURING CO., LTD. Manufacturers of and dealers in carbons and carbon substances of all kinds; chemists, makers of electrical and photographic apparatus, etc. Nominal capital £25,300 in 25,000 ordinary shares of £1 each and 6,000 deferred shares of 1s. each. Solicitors: Nicholson, Graham and Jones, 19–21, Moorgate, London, E.C.2.

COREN AND PHILLIPS, LTD., 5, John Street, Bedford Row, London, W.C.1. Buyers, sellers, manufacturers, and refiners of and dealers in all kinds of oils and oleaginous and saponaceous substances, etc. Nominal capital £500 in £1 shares.

Latest Government Contracts

THE following contracts have recently been placed by the various Government Departments:—

Admiralty

CIVIL ENGINEER-IN-CHIEF'S DEPARTMENT.—Cement: The Cement Marketing Co., Ltd., London.

CONTRACT AND PURCHASE DEPARTMENT.—Glycerin: Lever Bros., Ltd., Port Sunlight. Oil, Machinery, Light and Heavy: Anglo-American Oil Co., Ltd., London, S.W.; J. D. Hamilton, Ltd., Glasgow. Paint, Black: Colthurst and Harding, Ltd., Bristol. Paint, Oxide of Iron: Golden Valley Ochre and Oxide Co., Ltd., Wick, Glos. Vinegar: Grimble and Co., Ltd., London, N.W.

War Office

Lead: Oidas Metals Co., Ltd., London, E.C. Putty: Naylor Bros. (London), Ltd., Slough, Bucks. Retort Bench: South Metropolitan Gas Co., Ltd., London, S.W.

Air Ministry

Coke, Foundry: (Cardington): Peake, Oliver and Peake, Ltd., London, E.C. Coke, Gas: (Calshot): A. G. Dawbarn, London, E.C. (Cardington): Thos. McLeod and Partners, Ltd., London, E.C. (Harlescott): Peake, Oliver and Peake, Ltd., London, E.C. (Hawkinge): Folkestone Gas and Coke Co., Folkestone. (Henlow): Thos. McLeod and Partners, Ltd., London, E.C. (Manston): P. Hawksfield and Son, Ltd., London, E.C. (Milton): (Upavon and Netheravon): Peake, Oliver and Peake, Ltd., London, E.C. Colours, Identification, Nitro: Cellon (Richmond), Ltd., Richmond. Disinfectant Fluid: Sanitas Co., Ltd., London, E. Dope, Cellulose, Acetate: British Celanese, Ltd., London, S.W. Dope, Covering, Nitro: Cellon (Richmond), Ltd., Richmond. Paint, Blue Grey: Dixon's White, Ltd., London, E. Paraffin: (Iraq): Anglo-Persian Oil Co., London, E.C. Solvent: Cellon (Richmond), Ltd., Richmond.

H.M. Office of Works

Asphalte: The Excel Asphalte Co., Ltd., London; The London Asphalte Co., Ltd., London, E.C. Disinfectant Fluid: Morris, Little and Son, Ltd., Doncaster. Fire Extinguishers, etc.: Read and Campbell, Ltd., London, S.W.

Crown Agents for the Colonies

Asbestos Cement Sheets: Bell's Poilite and Everite Co., Ltd., London, S.E. Cement: Cement Marketing Co., London, S.W. Novarsenobillon: May and Baker, Ltd., London, S.W. Oil: C. C. Wakefield and Co., London, E.C. Oil Engine: Ruston and Hornsby, Ltd., Lincoln. Paint: Torbay Paint Co., London, E.C. Paint Preservative: Burt, Boulton and Haywood, London, E.C. Pumps, Centrifugal: Fleming and Ferguson, Ltd., Paisley. Quinine: Howards and Sons, Ltd., Ilford, Essex. Tar: J. Greenshields and Co., Glasgow.

H.M. Prison Commission

Drugs and Sundries: C. J. Hewlett and Son, Ltd., London, E.C. Gas Mantles: Plaissetty Manufacturing Co., London, E.; J. T. Robins, Ltd., London, S.W. Soap, Yellow and Carbolic: C. H. Parsons and Bros., Ltd., Leeds.

Chemical Company's Liquidation

AT the offices of the Board of Trade, London, on Wednesday, May 13, statutory meetings of the creditors and shareholders were held under a compulsory winding-up order made against Stromwall and Co., Ltd., 40-42, Queen Victoria Street, London, E.C. A statement showed as regards creditors, ranking liabilities £6,565 and net assets £282. As regards shareholders, the paid up capital was £9,590, and the total deficiency amounted to £15,872. The company's business consisted mostly in purchasing and selling as merchants or acting as selling agents of saltcake, liquid rosin, turpentine, and methyl alcohol, the greater part of which was obtained from Swedish firms.

The creditors decided to leave the liquidation in the hands of the Official Receiver. The shareholders' meeting was formally adjourned for a week.